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AMERICAN GAS ENGINEERING JOURNAL

FORMERLY

AMERICAN GAS LIGHT JOURNAL

VOL. CX., No. 22
WHOLE No. 3195

NEW YORK, SATURDAY, MAY 31, 1919

Subscription $3 per year
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PIPE ECONOMY

FOR EVERY JOB requiring pipe there is one kind of pipe more suitable than all others.

What kind of pipe does the job demand?

On the proper answer to this question depends real economy. Low initial cost, light weight, excessive tensile strength, personal preference, etc., question—What kind of pipe does the *job* demand?

If above ground, on the ground, under ground or under water; if for conveying water, gas, steam or acids, *cast iron pipe* is the pipe the job *demands*—its use is real economy.

There is but one pipe which once laid is as good for service hundreds of years afterward as the day it was installed.

There is but one pipe which constitutes an asset, a real asset, in the valution of any water or gas plant.

There is but one pipe that will not rot, rust or wear out.

There is but one pipe which does not deteriorate and which Mother Earth will embrace and not destroy—and that pipe is

CAST IRON PIPE

Some notable examples of its long and constant service:

Versailles	255 years
Weilburg	215 "
Claremont-Ferraud	170 "
Glasgow and London	125 "
New York	85 "

American cities are too young to have learned from their own experience the life of cast iron pipe.

The Cast Iron Pipe Publicity Bureau

1 Broadway **NewYork**

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This picture, size 10½ x 13½", either on heavy card with easel and eyelet for counter and window display, or on limp paper for use as window stickers, will be mailed to gas companies and plumbers for the asking.

HOT WATER
FAST AS COLD
THE KOMPAK AUTOMATIC WATER HEATER WILL FURNISH HOT WATER AT REASONABLE COST AS ABUNDANTLY IN WINTER AS IN SUMMER: A STREAM OF HOT WATER ALWAYS EQUAL IN FORCE TO THAT FROM THE COLD WATER FAUCET
THE LONG-LANDRETH-SCHNEIDER CO. MFRS. NEW BRUNSWICK, N.J.

Save a Service
Save a Meter

KOMPAK

TRADE-MARK
REG. IN U.S. PAT. OFF.

Automatic
Water Heaters

Your customer can draw hot water as fast as the cold water flow if he has a KompaK Automatic water heater in his home. To be able to fill his bath and laundry tubs **quickly** and get this "hot water fast as cold" service in winter same as in summer creates an attitude of enthusiastic satisfaction which spreads among friends and neighborhood. Install one KompaK and watch how easy it becomes to sell more.

The Long-Landreth-Schneider Co.

New Brunswick :: New Jersey

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American
Gas Engineering Journal

FORMERLY THE AMERICAN GAS LIGHT JOURNAL

Vol. CX, No. 22 NEW YORK, MAY 31, 1919 Whole No. 3195

Need of Department in Natural Gas Companies to See that Consumers Get the Most Out of the Gas They Burn

Manufactured Gas Range More Efficient with Natural Gas than Range Particularly Designed for Such Gas — Ninety-Nine Per Cent of High Bill Complaints Caused by Poor Application of Burner Equipment and Lack of Control Over Burners

By F. H. MUGG

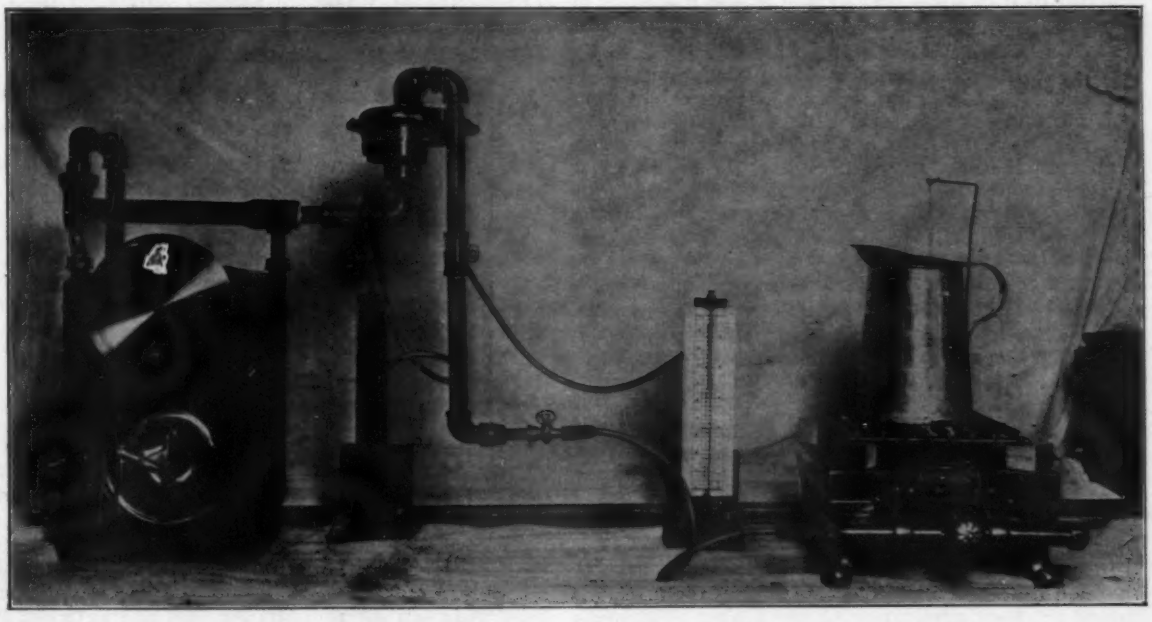
Gas Efficiency Engineer, Oklahoma Gas and Electric Company, Oklahoma City, Okla.

During the past two years we Americans have been taught the meaning of the word "conservation." Previous to this time half the population of this big country of ours would have had to look in the dictionary if asked to give a definition of this word.

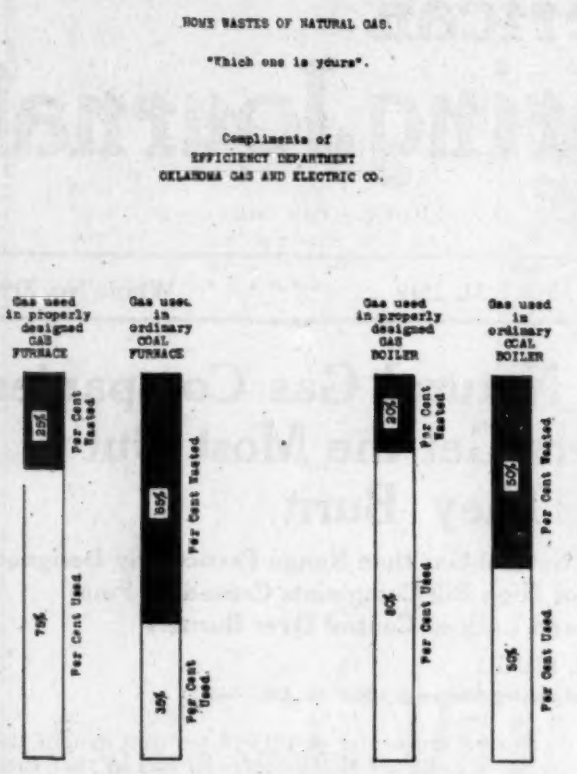
We have saved food so that our allies might eat. We have saved clothes so the destitute might keep warm, and have conserved in many other ways. But we are still the most wasteful nation on earth.

During the winter of 1917-18 we were taught the value of fuel, and the shortage of fuel at that time should have been sufficient warning to make us think of conserving it. But as soon as that shortage was over we went back to the same extravagant use as before.

The U. S. Fuel Administration says that 50 per cent of the natural gas used daily for cooking purposes is wasted, and if the proper appliances were



GET DOWN TO FACTS IN DETERMINING BEST BURNER EQUIPMENT AND PLACING


HOME WASTES OF NATURAL GAS.
"Which one is yours".
Compliments of
EFFICIENCY DEPARTMENT
OKLAHOMA GAS AND ELECTRIC CO.
Gas used in properly designed GAS FURNACE
25% Per Cent Wasted
75% Per Cent Used
Gas used in ordinary COAL FURNACE
65% Per Cent Wasted
35% Per Cent Used.
Gas used in properly designed GAS BOILER
20% Per Cent Wasted
80% Per Cent Used
Gas used in ordinary COAL BOILER
50% Per Cent Wasted
50% Per Cent Used

used in cooking purposes alone 24,000,000,000 cu. ft. of natural gas could be saved annually. If 50 per cent of the natural gas used daily for cooking purposes is wasted, it is a certainty that approximately 50 per cent of the gas used daily for all purposes is wasted.

When one thinks of what this saving would amount to if this gas was figured at the low price of 30 cents per 1,000 cu. ft., we begin to wonder how this can be saved.

With this object in view the Oklahoma Gas & Electric Company organized an efficiency department and the one purpose of this department is to save gas. As investigation has shown that this waste occurs on the consumer's premises, the only way it can be stopped is by educating the public into purchasing and using only appliances that develop the highest efficiency. As this company does not sell appliances, the many dealers and plumbers must be taught that only the highest grade appliances should be sold and a demand created for this class of goods.

Ninety Per Cent of Complaints Traceable to Common Cause

In natural gas territories where gas has been cheap the cost of the appliance has always been considered rather than the cost of operation, so that when the price of the gas increased the populace was up in arms and blamed the gas company for their high bills and never thought of looking for the cause.

Investigation has shown that about 99 per cent of the high bill complaints received in this territory are caused by poor application of the burner equipment and lack of control over these burners. In many cases 25 per cent has been saved by simply resetting the burners and installing thermostatic control when the trouble was located in a hot-air furnace or hot-water or steam boiler. In nearly every case of this nature we have found every appliance in the house badly out of adjustment. These investigations have also shown that about three out of every five houses have leaky house piping, and that in about nine cases out of ten the consumer, by using efficient appliances properly installed and regulated, could be paying three times as much per thousand for the gas and still not pay the company any more per month than they are now paying, besides getting a much improved service.

Now we all know what the effect of this wastefulness is on the gas business, so the first step necessary is to locate the cause. We also know that the cheapness of anything encourages waste. Therefore a raise in the price of gas will help curb this wastefulness. But why does the consumer allow such conditions to exist? Is it ignorance, or carelessness, or both? Investigation has shown that it is both. There is only one way to cure ignorance, and that is by education. Carelessness can only be stopped by placing a value on the article wasted that will encourage saving.

Then, again, the answer is to raise the price of gas.

As this company is not a producing but a distributing company, they have never had anything to do with the price of the gas and probably never will. Their business is done on a commission basis, but as they are the one who gets the complaints and the blame for high bills it is up to them to locate the cause and prescribe a cure. After carefully considering this question from all angles, it is apparent that the only way to effect this cure is by education, and this is where the efficiency department gets in its work.

As more people use gas for cooking than for any other purpose, we might as well start with the majority and first take up the application of gas for this class of work.

Starting Where the Start Should Have Been Made Thirty Years Ago

Most people have imagined that a specially constructed range was necessary to burn natural gas. Why the gas companies have allowed this condition to exist I do not know, but conditions at the present time show the folly of this silence, or ignorance, if you wish to call it that. We must now start where they should have started twenty-five or thirty years ago.

While the Ohio State University and the Smithsonian Institution have published bulletins regarding the relative efficiency of the artificial and natural gas ranges, this company wanted definite information on this subject, so tests were made with the apparatus shown in the photograph. A calorimeter was installed on the gas line and B.t.u. tests made while these tests were taken.

An ordinary demonstration dry meter was tested for accuracy, and on the outlet of this meter an Emco service regulator was installed. Two openings were left for pressure gauges, one between the meter and the regulator and one between the regu-

RELATIVE EFFICIENCY

Natural Gas Range and Artificial Gas Range.

Based on tests made by

EFFICIENCY DEPT.
OKLAHOMA GAS AND ELECTRIC CO.

ARTIFICIAL GAS RANGE

Pressure Ounces	Amount Water	Faucet Temp.	Final Temp.	Degrees raised	Distance of burner from bottom of kettle.	Time required.	Amount of Gas used.	Efficiency.
¼	5 Lbs.	72	142	70	1" 3-8	11' 37"	.97	43.2
½	"	69	139	70	"	10' 35"	.96	43.6
¾	"	70	140	70	"	9' 19"	.97	43.2
1	"	69	139	70	"	8' 56"	.97	43.2
1½	"	67	137	70	"	8' 24"	.95	44.1
2	"	67	137	70	"	7' 50"	.91	46.5
3	"	67	137	70	"	6' 23"	.94	44.6
4	"	67	137	70	"	6' 21"	.93	45.0
5	"	69	139	70	"	6' 19"	.95	44.6
6	"	72	142	70	"	5' 41"	.98	43.8
7	"	67	137	70	"	5' 40"	.97	43.2
8	"	70	140	70	"	5' 38"	1.00	41.9

Average B. T. U. of Gas 835.

NATURAL GAS RANGE.

Pressure Ounces.	Amount Water.	Faucet Temp.	Final Temp.	Degrees raised.	Distance of burner from bottom of kettle.	Time required.	Amount of Gas used.	Efficiency.
1	5 Lbs.	75	145	70	2" 3-4	9' 23"	1.28	31.6
1½	"	70	140	70	"	7' 58"	1.17	34.6
2	"	70	140	70	"	6' 45"	1.13	35.9
3	"	72	142	70	"	6' 34"	1.15	35.3
4	"	79	149	70	"	6' 11"	1.19	34.1
5	"	74	144	70	"	6' 07"	1.17*	34.6
6	"	78	148	70	"	5' 23"	1.17	34.6
7	"	72	142	70	"	6' 10"	1.17*	34.6
8	"	73	143	70	"	5' 31"	1.17	34.6

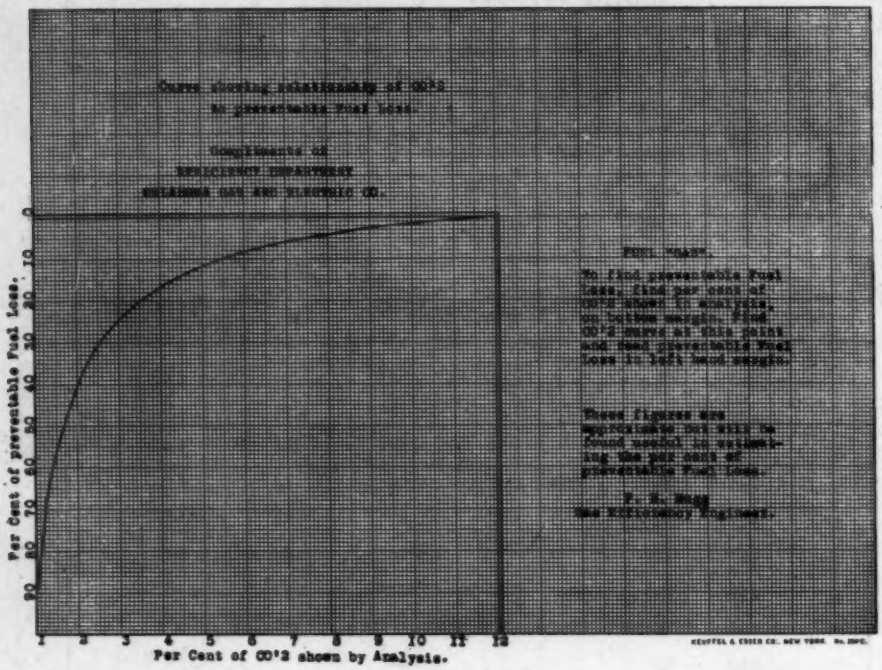
Average B. T. U. of Gas 863.

* Adjusted Orifice.

Average Efficiency of Artificial Gas Range 43.8%
Average Efficiency of Natural Gas Range 34.4%

NATURAL GAS RANGE IS 78.5% AS EFFICIENT AS ARTIFICIAL GAS RANGE.

lator and the hot plate. The object of these pressure gauges was to determine the most efficient pressure under which a range can be operated and to determine the sensitiveness of this regulator. For a test burner an ordinary stock hot plate was used. This hot plate was designed for use with artificial gas, and the distance from the top of the burner to the bottom of the kettle was 1⅜ in. This setting was taken as



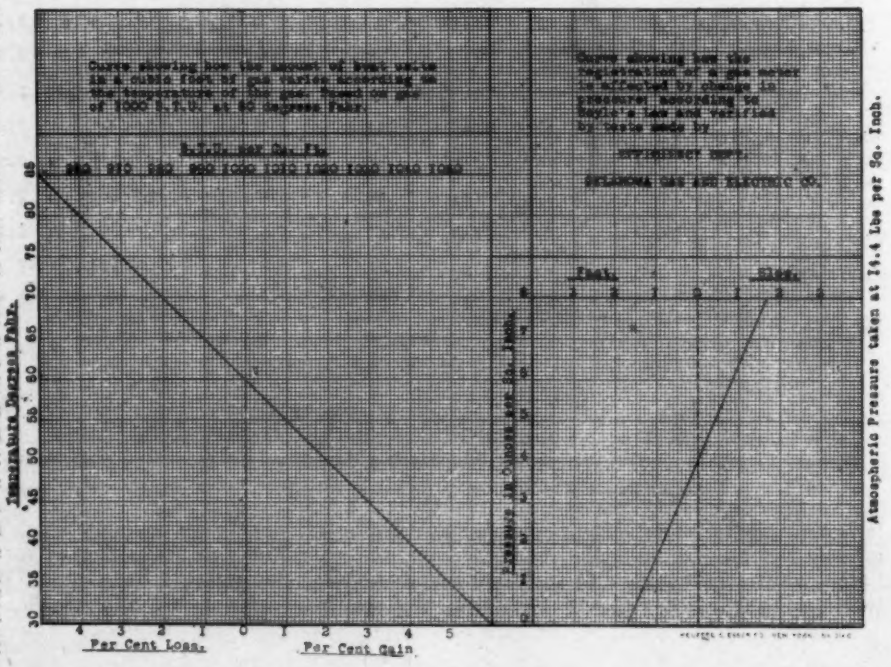
the average distance for artificial gas ranges. In making the test for a natural gas range the kettle was raised to 2¾ in. from the burner. In making these tests we tried to keep everything as near practical working conditions as possible.

Fallacy of Excessive Pressure Demanded

You will notice on the chart that the highest efficiency on both types of ranges was reached when operating on a 2-oz. pressure, but that considerable more gas was used by the natural gas range. While these figures show that the natural gas range is only 78½ per cent as efficient as the artificial gas range, it must be remembered that this difference in efficiency is due only to the location of the burner, and if the solid top had been used on the natural gas range it is safe to say it would not have been over 50 per cent as efficient as the artificial type of gas range. As the question of time enters into the successful operation of any appliance, a chart was drawn from these figures and the time plotted against the gas. Please notice where these lines cross. This test proves that from 2 to 3 oz. pressure is the best pressure under which to operate this type of equipment, or in fact any domestic appliance, be it used for cooking, water heating or house heating.

The question of pressure has been the cause of more trouble in natural gas territories than anything else. The public is under the impression that if the pressure falls below 8 oz. they are being cheated out of considerable gas, and, although we know they are not, it is the next thing to impossible to convince them otherwise.

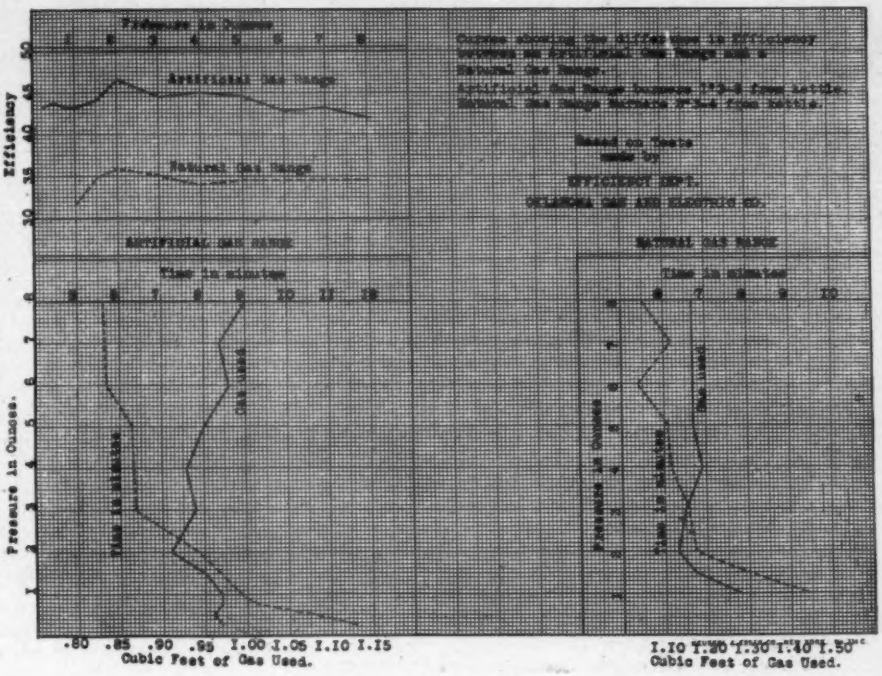
Natural gas is bought and sold on a 4-oz. basis and meters are tested to register correctly at this pressure, and are commercially correct regardless of the pressure, be it 1 oz. or 8 oz. Our complaint departments are furnished with charts, such as is shown here, which show the effect of atmospheric conditions on the gas and the effect various pressures have on the accuracy of the meter registration. As the only time the public is bothered with low pressure is on a cold day, you will note that the increase in B.t.u. per cubic foot of gas due to contraction more than offsets any error in the meter registration. The trouble which the public experiences is due to the appliances being adjusted to high pressure and not operating efficiently on low pressure without readjustment, and this readjustment they do not get. This trouble can be overcome by installing a low-pressure regulator on the house line and cutting the pressure to



between 2 and 3 oz. and adjusting all appliances to operate on this pressure.

This company is now advocating the use of the artificial gas range and the installation of a service regulator on the consumers' house piping. This regulator should be installed on the house piping near the meter and gas distributed to all appliances under approximately 2-oz. pressure. This will result in much more economical operation, with very little chance of their being troubled with low pressure.

This department has given talks before home economic classes at the high school and Oklahoma Agricultural and Mechanical College, dealers' meetings, etc.


Efficiency
Pressure in Ounces.
Time in minutes
Time in minutes
.80 .85 .90 .95 1.00 1.05 1.10 1.15
Cubic Feet of Gas Used.
1.10 1.20 1.30 1.40 1.50
Cubic Feet of Gas Used.

House-Heating Losses

In house heating we find the majority of better homes heated by hot air, and when one thinks of the large amount of fuel wasted each year by the present method of heating it makes one shudder and wonder if there isn't some way to stop the sale of such fuel-eating devices. Investigation has shown that the furnaces in use to-day which are designed for coal are from 25 to 35 per cent efficient. I surely would hate to think that out of every dollar's worth of fuel I burned 75 cents of it was going up the chimney. But such is the case, and there is only one way to stop it and that is by education. This educational work must be carried on through the architects and builders, as they are responsible for the installation of 90 per cent of this equipment. While this department is young and has not had a chance to accomplish much as yet, we are calling on these men and keeping them posted as to the most efficient appliances, be it for hot air, hot water or steam, and we hope in a short time to have nothing but high-grade appliances in their specifications.

We now have only the industrial consumer left and the conditions here are the most surprising of all. Most of the gas used for industrial purposes in any natural gas territory is used as fuel for boilers, and it is surprising to see how little the majority of engineers know about combustion. One of the worst mistakes any large concern can make is to make the engineer of their plant the boss over the boiler room. Any plant having a boiler capacity of 700 or 800 hp. could save considerable money each year if they would take the boiler room away from the engineer and put a man in there whose only job was to see that the fuel was properly used. Call him anything you wish, but give him complete control and make him responsible for every dollar's worth of fuel used, and you will find him to be one of the most valuable men in your employ. The average engineer of to-day is a good man mechanically, but when you mention combustion to him you might as well talk Greek, for he would understand that just as readily. I have called on many an engineer in fairly large power plants and asked him what per cent of CO_2 he was getting, and I knew from his expression and answer that he did not know if I was speaking about some new breakfast food or a patent medicine.

I have also found some who had a CO_2 set and knew how to operate it, but it did not do them any good, as they did not know or would not take the time to find out what the reading meant. Others had the set but were not using it because they had run out of the necessary solution for filling the bottle or a glass tube was broken, while others had some other excuse. To make a long story short, we have found that the engineer, although he may be a very good man, has so many irons in the fire that something must be neglected, so it is the boiler room. As long as the fireman is able to keep the hand on the steam gauge at the customary place he is satisfied to let well enough alone.

This department is making inspections of these boiler rooms and is making tests and instructing these men how to properly burn their fuel. In many cases we have found preventable fuel losses as high as 25 and 30 per cent on the larger installations and as high as 50 per cent on the smaller ones. We give them written specifications and instructions for correcting these losses, and insist on the installation of a separate draft gauge on each boiler. Each engineer is given a chart from which he can estimate the per cent of preventable fuel loss by taking a CO_2 analysis.

Much good has been accomplished by these tests and inspections, and it is hard to estimate how much fuel can be saved, but you can rest assured that it is no small amount; and it is only a question of time until all natural gas companies will have an efficiency department such as this company has organized.

The Political Responsibility of Engineers as Engineer Stinchcomb Sees It

The future of the engineer in politics, which was perhaps the outstanding question discussed at the Chicago convention of the American Association of Engineers, is set forth with power by W. A. Stinchcomb, of Cleveland, in a paper just received at the national office. Mr. Stinchcomb, who is county engineer for Cuyahoga County, Ohio, and was candidate for Mayor of Cleveland at the last election, was prevented from appearing at the convention to lead the discussion on this point. Declaring that the natural tendency of the engineer to keep out of governmental problems is an evasion of his real responsibility, Mr. Stinchcomb says:

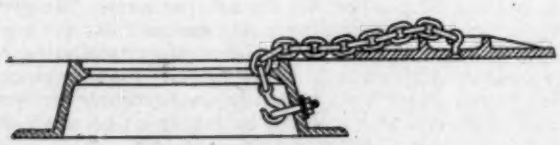
"Shall anyone say that the engineer's training and experience do not better fit him to solve the problem of government as our civilization becomes more complex than one trained in any of the other great professions? In our cities practically all of our problems are subject to scientific analysis."

In the physical plan of the city, in problems of public health, in housing—above all, in public utilities—the training of the engineer makes him the best judge of how to meet problems, Mr. Stinchcomb declares, and continues:

"On questions affecting the control of public utilities, such as transportation, electric or gas supply, and telephone service, the engineer's training best fits him to bargain with the trained mind representing the public utilities and to know that when the contract has been made justice has been done both the public and the service corporation. As cities extend farther into the realm of municipal ownership of these public utilities, his obligations to serve the public in an executive capacity in directing the management of such work increases and his fitness to serve grows."

The low remuneration paid the engineer and his lack of precedence in politics Mr. Stinchcomb describes as due to the lack of aggressive action on the part of the profession as a whole, and urges solidarity and daring on the part of the engineer in going forward to take his due place in the social scheme.

MANHOLE COVER IN PLACE



MANHOLE COVER REMOVED

Restraining Chain on Manhole Covers

The method, which the accompanying illustration brings out quite clearly, for keeping manhole covers within safe distance of their proper places, to prevent possible loss or damage in case of explosions in vaults or sewer manholes, was submitted by J. F. Gray, of the East Ohio Gas Company, Cleveland, Ohio, as a "Wrinkle" for the annual convention of the Natural Gas Association of America.

Walter R. Addicks New York Director of National Highway Traffic Association

At the annual meeting of the National Highway Traffic Association, held in New York City May 8, Walter R. Addicks, vice-president of the Consolidated Gas Company of New York, was re-elected a director of the association.

The officers elected are: President, Arthur H. Blanchard, professor of highway engineering, Columbia University; vice-presidents, David Beecroft and John T. Stanton; secretary, Elmer Thompson; treasurer, George H. Pride. Directors: Gen. T. Coleman du Pont, Delaware; William P. Eno, District of Columbia; William P. Beatty, Illinois; Charles H. Davis, Massachusetts; Walter R. Addicks, New York; R. J. Corbitt, North Carolina; Philip A. Koehring, Wisconsin.

Mr. Addicks, who is also a member of the executive board, has been connected with this association since its inception, then almost a local organization

Extensions and Additions in Indianapolis Fall Under Municipal Control

The Public Service Commission of Indiana has just made a precedential decision in regard to its jurisdiction in controversies between persons laying out additions or in other manner desiring main extensions of gas companies in districts or cities not supplied by gas companies.

The commission in its decision, which involves specifically the Citizens Gas Company of Indianapolis, takes the unqualified stand that it merely is an appellate body on such questions and that the board of public works in the city is the authority of jurisdiction in such controversies.

The decision came as the result of a long controversy between the Board of Public Works of Indianapolis and various public utilities of the city, particularly the Citizens Gas Company.

Apparently this controversy came to an end because of a letter from the public service commission in which the commission disclaims any right to intervene in any negotiations of such character between the commission and the utility company.

The letter, which was signed by Ernest I. Lewis, chairman of the commission, says that all such contracts between utilities and residents of the city should be submitted to the board of public works of the city for approval, the commission merely reserving the right to act as an appellate body for such cases.

George Lemaux, chairman of the Board of Public Works of Indianapolis, said that the commission's letter sustains the board's claim to the right to pass on such contracts. He said the board, however, would recognize the commission as an appellate body only in cases where utilities that have surrendered their franchises to the State are involved.

Utilities Need No Special Favor or Consideration —Need Only a Square Deal

George B. Cortelyou Advocates Informing Public as to Inner Working of Industry—Deplores Apologetic Publicity of the Kind that Would Indicate the Gas Company Is on the Defensive

We hear much of the needs of the utilities. Presupposing that they are honestly and efficiently conducted, what is their greatest need to-day? asked George B. Cortelyou, president of the American Gas Association, in an address at the joint dinner of the Natural Gas Association of America and the American Petroleum Institute at Cleveland May 21. Simply that they should have what we mean when we ask for a "square deal." A public utility is a part of the community—an essential part; its personnel are citizens, taxpayers, business men, as surely as any others who bear those honorable names. Why should there be the discrimination that in many places exists in the public mind? Partly because of past mistakes, of the misdeeds of a few, of the exigencies of politics, of a variety of causes, but in my judgment quite largely because we have underestimated the inherent sense of fairness of the American people when they are informed, when they are in possession of the facts. We have not given them the facts. Much of our publicity has been of a halting, apologetic kind, as though we were on the defensive. I say to you, gentlemen, that the facts are with us—the nature of our business, the cost of conducting it, the burdensome restrictions put upon it, the lack of flexibility in its regulation, the part it plays in the life of every community. We must make every company in very truth a public utility, and then see that the public is made to realize that it is. With this established, we have made progress toward adequate rates, enhanced credit and an ample and responsive market for our securities.

Not Even General Features Known

How many American communities know even the general features of our business? Properly told, it would be a most interesting story; in these days, when so much stress is laid upon practical information, it would be eminently practical.

And cost of production! Highly interesting, too; also serious and well-nigh ruinous for some companies, but extremely instructive in itself and when compared with that of other products.

Restrictions are probably necessary in some degree in all business, but does business thrive in proportion to the stringent character of these restrictions? Rather does it not expand and realize the hopes of both producer and consumer alike in proportion to their tendency toward reasonableness?

And that brings us to the absence of flexibility in public regulation. I undertake to say that much of the regulation of this character makes it impossible for the companies to render their best service. That is what each community wants from its utilities, the best service, and if it can be made to see that the multitude and rigidity of the exactions put upon them are counter to its own best interests, we have prepared the way for sympathetic response to our just claims.

The Color in the Daily Routine

The public is better informed of the part played by the utilities in the war than of their daily routine of business—and it was a splendid and essential part; but it seems to me that, aside from all other aspects, that most patriotic and creditable record is useful as a foundation for the diffusion of a more permanent understanding of their vital relations to all industrial activity. With a prompt and widespread resumption of business one of the most urgent demands of the country, and with governmental war restrictions lifted, why is not this a good time to acquaint the public with the part the utility can play in the business life of the community, if encouraged to its best efforts, and to look squarely in the face this deterrent influence of unnecessarily burdensome regulation?

Many of us who believe thoroughly in the regulation of utilities when it is administered fairly and impartially feel that not a little of it is dispensed upon theories far removed from that wholesome conception.

We must hasten the day when we shall, as great industries, take and maintain our place in American business life by the side of merchant and manufacturer and banker, and as surely and with as general acceptance.

Publicity Must Be Backed by Real Worth

But back of all publicity must be adequate equipment, trained personnel, contented labor and a management alive to its responsibilities; for when the response comes to our announcements we must be ready to meet it in full measure.

In our business nothing confounds hostile attacks so quickly as good service; nothing silences hasty criticism so thoroughly as honest and efficient management.

We are signally honored to-night by the presence of so many of the pioneers and veterans of the two industries and the past presidents of your association whom you and your committee have invited to attend this meeting. If you will permit me to say so, I think their presence is its distinguishing feature.

I do not subscribe to the doctrine, somewhat prevalent at the moment, that the past should be scrapped, that it can be of little use to us in solving the problems of this new era; nor to that twin monstrosity that anything of to-day or to-morrow that is consistent with what has gone before is a menace to mankind. Out of the past come the lessons of experience; out of the past come incentive and inspiration; out of the past come memories of courage and self-sacrifice, of loyalty and devotion.

I am for the veterans: I honor them for their achievements. I say to them, Hail and not farewell!

And then I say to them, "The torch you have passed on to us we will carry forward to further achievement and to further service."

Deplores Tendency He Sees on Part of Gas Man to Rely Too Much Upon Manufacturer for Origination of Improvements

Mac. D. Dexter Discusses Station and District Governors — Clock Control Has Stood Test of Time

Our only sources of information on the design of the various types of pressure-regulating devices now in use have been the bulletins of the various manufacturers, or that actual knowledge which we have acquired through experience in the use of pressure-controlling devices, declared Mac. D. Dexter in a paper before the recent annual convention of the Southern Gas Association.

It is typical of many industries to leave to manufacturing specialists to design improvements in the art, whereas the reverse should largely be the case.

It is probably more the case in the gas industry on account of its being such an old and, generally speaking, conservative business.

It is probably easier to let the other fellow do the work and shoulder the responsibility of operation resulting from design, but if we studied the principles of design more we could probably select apparatus to greater advantage and have a clearer idea of operation, and, with the greater opportunity than the manufacturer by observing operation of the apparatus, be in much better position to design improvements, either to overcome troubles or to operate more efficiently or to meet new conditions of service.

Once a Different Condition Existed

A review of the files of gas journals in the eighties or earlier indicated a much greater inventiveness among gas men than at the present day.

Did the advent of electricity dampen some of the enthusiasm of gas men? Or does the absorption of gas companies into organizations where the electric end, such as light, power and street railway interests, predominates have any effect on the initiative of gas men?

Attention, however, is called to the fact that the Southern gas man is already taking a lead. There are the Congdon scrubber, the Maxon-Premix burner and Mr. Zeek's automatic operation of water gas sets. For the latter Mr. Zeek has been awarded a medal by the Franklin Institute. Mr. Congdon and Mr. Maxon were largely responsible for the organization of the Southern Gas Association, and each is a member of this Southern gas association.

No Need of a Governor in Earlier Days

The study of pneumatics in itself is most interesting, and many problems can be worked out by utilizing simple laws. It is interesting to understand how a pneumatic pressure of only a few ounces per square inch can raise the weight of the many hundreds of tons represented by the weight of large gas holders, the levels of water in hydraulic mains, dip pipes, holder cups, and to the studious engineer many other problems are presented. So also is the problem of distribution of gas an interesting subject, both from a scientific and physical standpoint. Here we have such varying factors as the varying cross-sections, specific gravities, velocities and pressure differentials to take into consideration.

There are many types of apparatus for reducing, regulating or controlling fluid pressures. Some are known as governors, regulators, pressure controls. Only such types as are suited to control low pressures, as for gas distribution, will be considered in this paper.

In the earliest days of the gas industry there was need of a governor; the holders themselves, being of small size and probably counterweighted, furnished the desired pressure. But as holders of large size or of multiple lift, throwing higher and varying pressures, were developed, some form of regulating or governing pressures became necessary. Also as business grew and friction increased in the mains, it became desirable to increase pressure during the peak, which at first was only at night for the lighting load. Pressures, however, were kept as low as possible the remaining 80 per cent of the time in order to conserve leakage.

Thus the first governor was a reducing pressure regulator, maintaining a fixed uniform pressure, the additional pressure being accomplished by adding weights and removing weights by hand.

These governors are actuated by the outlet or delivery pressure, which holds in static balance the combination of the valve and miniature holder, known as the "float" or "bell," increased weight on the bell or float resulting in an increased delivery pressure to maintain a balance.

Hand-changing of weights, unless done at frequent intervals and small units, caused undesirable and noticeable fluctuation of pressures. This inspired the invention of automatic means of adding and removing weights to the float, the first means employed being liquid mercury suspended as a counterweight and adapted to flow by gravity on to the float as the load came on.

Larger Floats, Requiring Less Counterbalancing Weights

This form of governor was developed in the eighties, and for a number of years was the only type of automatically loading governor. The peak loading being dependent upon the movement of the valve as caused by its opening wider as the peak comes on, a practically uniform initial pressure is necessary, an additional "balance" governor being a practical necessity; otherwise, if the initial pressure varied the valve on the automatic governor would have to move, which would vary the mercury loading, and

thus the governor would be affected by a factor of the inlet pressure, which would be undesirable.

It is the writer's opinion that this mercury governor has indirectly affected the design of American float-type balance governors in reference to the relative sizes of the floats.

With mercury as the loading agent, it was natural to design governors with as small floats as possible so as to keep the mercury required at a minimum, even though the mercury really flows from the counterbalance to the float.

With governors with relatively small floats, counterweights working over pulleys or on levers are necessary to assist the delivery pressure acting under the float in maintaining the valve and float in balance.

The above opinion is a conclusion reached from observation that it is the English practice, and of American makers other than the makers of automatic governors, to design larger floats requiring less counterbalance weights or "flotation" to effect minimum delivery pressures.

The principle is this: if a governor has a float 20 in. in diameter, and the minimum delivery pressure is 3 in., then the force of the delivery pressure acting under the float is equivalent to the weight of a pan of water 20 in. in diameter and 3 in. deep, or about 34 lbs. Now if the weight of the valve, valve stem and float is greater than this, a counterbalance is necessary. The counterbalance can be by means of an air chamber within the float and beneath the water level, or by counterweights.

But why is the diameter of the float important in the design of a balance governor? In this type of governor, the energy that controls the valve is the delivery pressure acting directly. Now if the float is 20 in. in diameter, 1/10 in. change in delivery pressure produces a force of 3.4 lb. to move the valve against friction, clogging from naphthalene, etc. A float one half this diameter would only have a force of 0.8 lb., and one of 40-in. diameter would exert a force of 13.6 lbs.

Delivery Pressure Holds Controlling Element in Balance

The term balance governor is usually applied to any governor not automatic, and is derived from the fact that the controlling element is held in balance by the delivery pressure. All governors to control delivery pressures are balance, even an automatic governor is a balance governor with an automatic loading feature, but the term as generally used is to distinguish an automatic governor from one which maintains a fixed delivery pressure.

Now a balanced valve is one where the inlet pressure acting on one side of the valve is balanced, either by having a two-seated valve where the inlet pressure acts on the top side of one valve and the bottom of the other, or in the case of a single-seated valve, the inlet pressure is caused to act on a portion of the float, separated from the rest, of the same area as the valve, or on the surface of a small diaphragm of same area. Balancing a valve is of course a refinement, and adds to the sensitiveness of operation, but it's of less importance in low-pressure regulation, with small-inlet pressure, than in the case of high-pressure governors or fluid governors for the control of steam or water pressures.

Other Types of Governors

There are other types of governors in use designed to secure additional energy or force to control the movement of the valve, one by having, instead of a float, two diaphragms—one acting directly, on the same principle as a float, and the force of the other acting through levers in the same direction. The same effect of increased force of the delivery pressure changes can be had by means of an auxiliary diaphragm.

Other types of governors have been designed with the object of utilizing the greater power of the initial pressure. This is accomplished by means of having a throttled supply of pressure from the inlet, in contact with the float or diaphragm; this line then passes through a small auxiliary balance governor operating directly by the delivery or outlet pressure of the governor. This little auxiliary governor, by opening or closing, causes the small supply from the inlet to back up or be released ,and being in pneumatic contact with the controlling diaphragm, permits of the full inlet pressure for controlling the main valve. This type of governor makes it possible to control relatively higher inlet pressures than with the float-type balance governors.

Another type of governor has a small auxiliary balance diaphragm, actuated by the delivery pressure, moving the equivalent of a slide valve which causes the pressure from the inlet to act on both sides of the main float or diaphragm alternately, as may be necessary; thus the full inlet pressure can be utilized for both opening or closing the regulating valve.

These latter type of governors have some advantages, especially for certain purposes, but generally speaking, for controlling the relatively low pressures thrown by holders; the simpler forms of float-type governors are more generally in use. This is probably due to their greater simplicity and reliability, and absence of small pipes, small orifices and the necessity for their operation of the flow of gas in small pipes, where stoppages, such as from naphthalene would possibly render the whole governor inoperative.

Automatic Extra Pressure Controls

Types of automatic peak-load extra-pressure controls have been developed, operated by a throttling valve placed at the outlet of the governor, causing a slight differential in proportion to the velocity of send-out. This differential is increased by a venturi through which gas is forced to circulate by reason of this differential. This differential is communicated to the opposite sides of an auxiliary float, which effects a movement of mercury to the controlling diaphragm of the governor.

The advantage claimed for such a peak-pressure control, is that the element of control is on the outlet of the governor, and therefore is not affected by varying inlet pressures. This form of control is easily rendered inoperative by naphthalene or other stoppages.

The writer has developed a method of auxiliary pressure control which can be applied to any type of governor. This control is capable of two applications —automatic or by clockwork. The latter method has been in operation for nearly two years and has seemed to possess such merits that United States and foreign patents have been applied for.

Heretofore there has not been perfected a simple and reliable means of controlling pressures by clockwork, although the records of the Patent Office disclose a number of attempts to accomplish the same

but which were never used by the industry for obvious reasons.

The success of this invention is that the clockwork mechanism does not perform the work of adding pressure to the governor, but this is done by the pressure of gas.

There are many cases—for instance, where there is outlying reinforcement during peaks, or where there is more than one point of supply—where an automatic governor cannot give the desired pressure curves; also there is such a thing as district peaks, which in themselves require additional pressure but which in themselves are not sufficient to "load" an automatic governor. Similarly, certain industrial business between peaks might require more pressure than the minimum pressure delivered off peaks by an automatic governor. This method is offered as the means by which the best service is rendered by carrying the pressures at the governor as are determined by outlying pressure charts to be best suited; hence the name selective service pressure control.

The method of control is very simple. Being by pneumatic means instead of by dead weights, it is only necessary that the space above the diaphragm or float, under which the delivery pressure acts, be rendered gastight. For each inch of pneumatic pressure added 1 in. additional outlet pressure will be delivered by the governor.

The amount of pneumatic pressure added is dependent on the amount of seal on a small dip pipe, which can be variably submerged in mercury. Thus, by a very slight movement of this little dip pipe any desired degree of added pressure can be had from the governor. In the case of the clockwork control, the movement of the dip pipe is effected by a pasteboard cam disc, which can be cut as desired. In the automatic governor the movement of the main valve as the peak comes on, through lever or other reducing mechanism, causes the lowering or raising of the dip pipe.

There being practically no extra work done by the clock, the one of any twenty-four-hour circular chart recording gauge is utilized without interfering with its utility for recording pressures.

A supply of gas, regulated by the needle valve, is fed to the line of pipe, one end of which communicates with the enclosed space above the float of the balance governor, the other end connecting, by means of the flexible tube, with the dip pipe, mounted on the end of the ell-shaped lever and normally resting just above the level of mercury in the receptacle.

On the upper end of the ell-shaped lever is a roller which rests on the outer edge of the pasteboard disc, which is back of the regular chart of the recording gauge.

The balance governor has been previously adjusted so as to maintain the desired minimum pressure.

Since the gas that is supplied through the needle valve is escaping into the atmosphere, there is no additional pressure on the top of the float and there is no increase in pressure; but if depressions are cut in the outer edge of the pasteboard disc, the dip pipe will be lowered into the mercury; pressure will now be built up within the dip pipe and transmitted to the governor float, causing the increase in pressure to be delivered by the governor.

The tube surrounding the dip pipe is merely to collect the escaping gas so it can be vented from the room. The mercury receptacle is provided with threads on the stem for very fine adjustment of the mercury level, as well as affording a handy means of temporarily increasing pressure by hand if ever necessary.

The sight feed just before the needle valve is merely for assurance of the supply of gas. Attention has been called, in the discussion of various types of governors, to the advantages of simplicity and reliability, and the liability of small auxiliary piping to stoppage and render the governor inoperative. In this case, however, practically the only place where there is likelihood of stoppage would be in the needle valve. A stoppage here would cause the gas to cease bubbling in the sight feed, and this would be apparent.

Result of Stoppage

But what would be the worst result of such a stoppage? Merely that the added pressure would not go on—not that the main governor would not perform, for you still have the simplest and most reliable form of governor. These points are mentioned with the object of giving as complete a description as practicable and an endeavor to anticipate what might be considered a weakness.

But why presume that there would be trouble with stoppage in the needle valve? What would cause a stoppage in the needle valve would, to a great extent, stop the pilots to arcs, and it will be presumed that you do not make this kind of gas.

The amount of gas fed through the sight feed and needle valve is small; it is evident that it has only to be enough to build up a pressure in the space above the governor float, of course taking into consideration that when the pressure is being added the valve is being lowered as the peak comes on.

This control apparatus can be placed any reasonable distance from the governor itself, the pipe line between the two being principally to transmit pressure, there being no constant flowing of gas through it. Thus the governor need not be placed in an accessible place; it need not be offset from the line; the control can be some distance, in the works office or other convenient place.

The cam disc has radial lines representing the twenty-four hours of the day and circumferential lines representing pressure; that is, the depth to cut away for different pressure increases. The depth of cuts in the cam disc governs the amount of pressure increase and the angle of the cuts the time required to effect the increase.

Having determined the pressures above minimum desirable to carry, a disc can be cut with a pair of scissors and such pressure changes will be produced during each peak until a change of seasons or other conditions render a change desirable.

Different Disc for Unusual Occasions

A slightly different disc may be required for from Saturday night through Sunday morning, but this is as easily changed as a chart. Otherwise the disc is not disturbed, even when changing the daily chart, the clock being wound through a hole in the disc.

The automatic application has not had the test of time that the clock control has.

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As the Journal Views It

Getting the Dollars the Saloon Man Got

We have no idea how many gas companies are already engaged in chalking up to the credit side of their ledgers a goodly proportion of the dollars the saloon man has been getting and will be getting until Prohibition. If they are few the gas industry is surely behind times, and is losing an excellent chance to revel in anticipation, even though realization may never eventuate to the degree expected. Most every industry seems to be counting on its share of the money thus spent, and the habit seems to be to appropriate to oneself the major portion of it.

We publish in this issue an article by J. E. Bullard which seeks to point out the way in which the gas industry may expect to share in that more than a billion dollars the American people have been spending on hard beverages. It is the policy of the AMERICAN GAS ENGINEERING JOURNAL not to permit its own opinions and beliefs to enter into the selection of the contributed articles it publishes. In publishing this article by Mr. Bullard we are adhering to this policy.

We do not think he has reached the real heart of the matter at all. But Mr. Bullard has won prominence as a writer whose suggestions are valuable. It may be that he is right and we are wrong, or vice versa.

Mr. Bullard, in common with others, takes it for

granted that because $1,724,000,000 has been spent for alcoholic drinks, now that alcoholic drinks are about to be prohibited it will be spent for something else. Thus, in our opinion, his very premises are wrong.

The American people to a large degree have become acquainted with a word they never before had much use for. That word is—Thrift!

Its significance has been brought home to them so painfully in some cases that it bids fair to be held in memory. Particularly do people on fixed income, formerly in easy circumstances, now with the dollar cut in half, reduced to circumstances approaching poverty, regret that they never paid much heed to that rainy-day council.

Any merchandising policy that is based on the assumption that the American people are the old ridiculously self-confident, reckless, spendthrift people they were but a few years ago is not sound.

Our people are by no means models of prudence in the matter of money spending even yet. Still there has been a marked change, and, generally speaking, they want something real for their money when they do spend. Gas appliances, therefore, fall within the fold whose situation is bettered in the merchandising sense by the tendency toward greater judgment in spending.

We believe as Mr. Bullard does, but in a different way, that prohibition will benefit gas lighting; this for the reason that the lord of the purse-string will spend a greater proportion of his time at home, will experience enough of the annoyance of inadequate illumination to take a real interest in the sitting-room lamps.

The home conditions of some men, of course, are such, in their viewpoint, that they will go anywhere to get away from them. Denied the saloon, such men, as Mr. Bullard suggests, may increase the business of the candy store.

But another large class has gone to the saloon, lured by its general glitter. This lure removed, they will more likely stay at home the greater number of nights. Then we may expect highly receptive prospects for good gas lighting come to light in amazing numbers.

A Matter of Prestige

Haiti is a land of which the gas man in general has heard little. There isn't, or was not up to our last advices, a gas plant in the entire republic. Judging it upon this basis, we would assume that its people are not yet civilized. At least, we would not look for enlightenment to a land whose people are not intelligent enough to a land whose people are not intelligent enough to realize and demand the convenience represented in gas service.

Yet for a century back the rulers of this strange though near-by land profited hugely by a policy of compensation whose advantages we have largely seemed oblivious to.

The general run of Haitians never went in very strong for education. Learned men did not appeal to the popular imagination. By freak of fate a few educated men did attain the presidency of the country, but their administrations were the shortest lived. The rulers have come, almost without exception, from the crudest type of the populace. Yet witness their system of building up an organization that for economy in the matter of pay-rolls has never been paralleled even in the American gas industry.

Being president was the Haitian's most promising means of acquiring a fortune. And he had to do it quick.

An army was an absolute essential to holding his office.

Usually, when the Haitian began his term his pockets were empty. In fact, it was that emptiness of pocket that was the inspiration of his candidacy—at the head of some armed hundreds equally needy.

Manifestly he could not acquire an army by holding out inducements of high and certain compensation. After he got his hand into the national treasury he could not continue an army on such a basis; that would be to defeat his primary aim of attaining a personal competence. He needed all he could get for himself; for his tenure of office, at the best, of necessity must be short lived.

He therefore got the strongest and, for this purpose, the best by making the job attractive through its dignity and the title it carried. Indiscriminately he appointed captains, generals and what not. A certain proportion of privates there must be, of course. These were provided by strong-arm methods on the part of the first appointed. Thus there existed an army, possibly as cheap an army, in the matter of compensation received by the individual, as any known and possibly as poor an army as any known. But it filled the bill, which was as much as could be desired.

This matter of the sense of dignity that is attached to a job has a greater importance than some of us seem to realize. It has, moreover, a monetary value.

It is as in the case of a superintendent we once knew.

He was generally looked up to by all in the company's employ, even by the commercial manager. And the latter's monthly salary was about one-quarter higher than that of the superintendent.

Yet the superintendent was perfectly happy and contented in his situation. His feeling of self-importance compensated him for the difference in money received.

We do not advocate compensating gas company workers by playing up to their self-esteem alone. Compensating him in such manner that he may live

in a manner that is commensurate with the reasonable tastes his mental plane must develop within him, without worry and the necessity of giving deep thought to every penny he spends, and yet have something ahead each month to show for his work, is a prime essential to a contented and efficient employee.

If we add to that a sense of dignity attached to his position we've gone a long way toward satisfying his every normal desire.

A Loss? — Yes, but the Gain Is Greater

We have all lost employees whose going we bitterly regretted. In many cases the decision to go arises from motives aside from any conduct or policies we have established. In such cases no alterations we might have accomplished in our attitude toward the particular employee would have prevented the loss.

But in many cases the resignation has been inspired by disgruntlement—disappointment—upon the part of the employee. Too often have we attributed his action to "hotheadedness" and have learned nothing.

Regret not the loss of the employee, however competent, who has become so thoroughly sick and tired of his job that he quits. In that frame of mind he is better gone, from the viewpoint of your interests, than if he had stayed.

Whatever his own inclinations, he can never be of half the value to you of a man one-tenth as competent whose loyalty, enthusiasm and good-will your conduct has not yet chilled.

It is an unhappy day for the employer when a competent employee becomes thoroughly sick and tired of his job. The spark that has made him competent is then smothered.

If he leaves, the employer loses. If he stays, he still loses.

The supply of competent men may be as ample as some seem to think it is. Nevertheless, the bird in the hand is still worth two in the bush.

This being the case, it would seem that considerable thought might profitably be given to preventing competent people from becoming sick of the job, such a tendency by no means being an uncommon ailment.

A prolific source of such inclinations on the part of the employee is too much loose comment on the way he does things, carried on behind his back and sometimes even in conversation with other employees actually subordinate to him.

If there is anything to criticize in his manner of handling his department or his subordinates, there is sufficient excuse to bring the matter to his attention direct. If the employer or executive lacks the courage to adopt such course toward his employee or subordinate, it is evident that he lacks a very necessary qualification for his office.

Back-stairs criticism never reaches the one criticized in such manner as to inspire him to consider the matter from a constructive viewpoint. It merely irritates and embitters him with his situation.

Too much meddling is another promising means of making employees disheartened with their situation.

All men do not achieve success in management by similar means.

We do not believe in man-driving as a means to obtain real results. Yet there have, in the past, been executives and employers who by driving have achieved dazzling success. Perhaps there are situations even to-day wherein the man-driver may secure the best results, though we strongly doubt it.

Other men have "produced" by systematizing almost to the point of making a department merely mechanical; others by getting deeply into the lives and interests of those working under their direction, and by winning their friendship and whole-hearted co-operation by what may seem to others extreme liberality in time off for diversion or the gratification of personal interests.

A list such as this could be stretched on indefinitely.

If the art of managing, obtaining the maximum results at the minimum expense consistent with the wholesomeness of the social body, could be reduced to rule-and-thumb methods we would not every so often be hearing about those hundred thousand and million dollar salaries.

A good rule, therefore, is to be sure of whom we hire to manage. Then let us permit him to manage in his own way, only putting in our own opinions and counsel when our manager has indicated that he wants such assistance.

In any case, whether he be a fawning sycophant or a bull in a china closet, it is by the results that he produces that we judge him. Since this is the case, why obtrude our own notions and interference during the periods he is in fact on trial?

If the results he produces are satisfactory and the methods he employs are not such that will bring disrepute upon the company, we have obtained from him the maximum we could obtain under any circumstance, so sticking our own noses into his task will have gained us nothing whatever, and in the meantime we will have risked getting them twisted out of joint.

On the other hand, if he is not competent to manage, our counsels will be superfluous and of no avail and our stepping constantly on his toes will make him even less competent. The only remedy in such case is to dispense with him and get someone who is competent. We do not employ assistants with the expectation that we will do their jobs for them. We

employ them, rather, to take jobs off our shoulders.

There is a large number of other incitations to employees becoming "sick and tired of their jobs" that seem considerably practised. Space forbids even listing those which come instantly to the writer's mind.

Locating such causes is merely a matter of common sense and a certain amount of self-introspection. We know what we would not tolerate from the other fellow were our positions reversed. How, then, can we expect him to tolerate contentedly that some thing from us?

Not a Benevolence but a Profit-Earning Undertaking

A Public Service Commission Member Interests Himself in Gas Company Employees' Compensation

By E. D. CARPENTER

The unexpected has come to pass. A member of a public service commission has taken a stand for adequate compensation for employees of a gas company.

He is fair, though.

If existing rates do not provide for such conditions he would change rates to do so.

Most thinking men have realized that if the great general public became aware of the relationship between rates and the grade of people who provide their gas for them there would be little argument over making the increases.

The Source an Unexpected One

But most of us more or less thought this would come to pass through some gas company's mustering up the spunk to say in effect:

"You expect from us superior service. We can give it only by being able to employ the highest grade of engineers, the highest grade of chemists, the highest grade of office people, the highest grade of labor.

"The compensation we are able to offer them, due to the rates we are compelled to sell at, is of a size that cannot be expected to attract any but second or third grade men. We must pay more if you want superior service. You in turn must pay more to us."

Because many men, perfectly good gas men, are and have been personally impractical, willing to sacrifice a proportion of their daily value for the sake of having what they consider a permanent job, the gas industry has been able to enlist within its ranks men of the highest grades in the lines enumerated. So it was with the railroads.

Things Have Changed

But times have changed. Most men are beginning to know their value. There is a dawning realization, too, that the "rolling stone" counsel is somewhat of a fallacy. The delusion in regard to the value of the permanent job at miserable compensation over a period of years too many have seen shattered before their very eyes

Will Have to Bid as High as Others

To get the kind of men its needs in the future will require the gas industry will be compelled to bid as high or higher than other industries. If it doesn't, and because of its rates cannot, it might just as well reconcile itself to supplying half-way service and the public will have to content itself with such service. There is no other way out.

It must go even farther.

Throughout the ages the employed have been emerging from serfdom and paternalism gradually into a place of dignity.

The gas manager, like the steel manager and the mine manager, has, consciously or unconsciously, placed himself on a superior plane to his subordinate workers.

He assumed to himself greater independence of action, not only in business conduct but even in personal matters, than he would permit of subordinates. He liked to be "kow-towed" to to a greater or less degree; in fact, often adjudged the overrespectful employee, other things being almost equal, a better employee than one who, while courteous, felt himself just as good a man as the boss, even though his stipend be less.

What the Best Will Demand

The best worker of the future will demand that all, from the highest to the lowest, be on an equal plane of dignity. He will insist that his value be judged by the value of his work, not by the degree of smirking and kow-towing he may do.

He will not tolerate being passed by in advancement by one who, though less meritorious, is blessed or cursed with what is known as a "pull," and in this he will be sustained by his fellows.

The producer in the years to come will refuse, as he has not in the past, to be shouldered with the burden of providing for the parasite.

What the Industry Must Offer

These things the gas industry must be prepared to offer if it is to have the best grade of workers in the future: Attractive compensation, full respect for the dignity of the individual, and complete fairness and impartiality in advancements and appointments.

Only the first it cannot provide from its own volition alone. Attractive compensation without adequate rates is an impossibility. This rests with the public, and the gas industry can and should make the public comprehend.

Respecting the dignity of the employee and the complete elimination of favoritism is a matter of our own attitude. If our tendency does not travel in such channels right now we had better begin quickly to guide it in that direction.

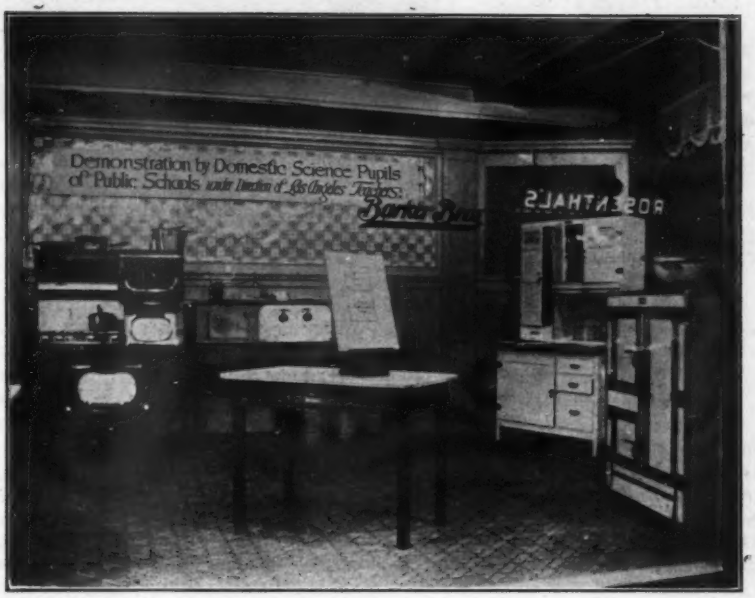
Comparison of Gas Rates for Past Five Years

Gas rates are lower now than in 1914 in sixty-five towns and cities of Illinois, according to a statement made public by the Illinois Committee on Public Utility Information. In 29 per cent of the cities over 1,000 the rates are less now than before the war.

Make Sure that the Story Will Get Home by Addressing a Circular to the Child

Team work counts fully as much in business as in sports. This fact was amply proven during the week of May 5 in Los Angeles, Cal., when all the dealers in gas stoves and appliances got together and inaugurated a campaign for gas ranges so far-reaching in its scope that the merits of gas for cooking was made known to every man, woman and child in the city and surrounding country.

Three sets of circulars were prepared, one destined for the man; the second for the woman, and the third for the child of the household. It might seem to some that an appeal to the child would have little weight, but the association figured that whereas some of the circulars sent to the adults would be cast into the waste-basket, every child, delighted with the importance of receiving a letter, would be sure to read it—and that in most instances the communication, while remaining about the house, would be seen by the parents also. The message addressed to the child took the form of a little booklet, with gay-colored pictures, and a little jingle, about the Modern Mother Goose. For the benefit of any individual gas merchant who might wish to use it in his own advertising, the verses are given herewith:



MOTHER GOOSE FOR 1919

The Maiden

A little maiden all forlorn,
Who rose with the sun on a summer's morn,
And wept as she thought of the bread and cake
And pies and cookies she had to make.

The Hod

She filled the range with a hod of coal;
The heat was enough to try her soul;
She labored till noon with an aching head,
Till she finished her baking of cake and bread.

The Man

Then the man, who came with a smile so bland,
Who came to the door with his hat in his hand,
And told the maiden a tale so fair
That she ordered a *Gas Range* then and there.

The Range

Then the gas range that came next day,
And turned all drudgery into play;
That banished the coal and the ashes and heat,
And cooked things fit for a king to eat.

Again the Maiden

The maiden forlorn has grown sweet and fair,
Since her life has been freed of its worry and care.
And she blessed the man with the smile so bland,
Who came to the door with his hat in his hand,
And told her a tale so true and so fair,
That she ordered a *Gas Range* then and there.

Full many a truth is spoken in jest, and many a housewife on reading the merry little jingle was struck with the sound common sense of it, and imbued with the idea of emulating the "maiden all forlorn."

The circular sent to the man of the household stated a few plain facts regarding the relative economy of gas, oil and coal. As the bill paying member of the household the appeal was directed towards his pocketbook:

GAS ECONOMY PROVED

Gas is proved to be more economical—not only by monthly bills, if all fuel expenses are added up, as well as the original outlay in the stove that burns the fuel—but by

the unerring results which the law of mathematics works out.

Because gas is capable of being utilized more directly against the object to be cooked its efficiency is double that of oil, and nearly three times that of coal. The efficiency of gas is scientifically set down as 40 per cent; that of distillate of oil, 20 per cent; and of coal, 15 per cent.

Worked out visually after accurate computation, the actual amount of work which a dollar's worth of each of the three fuels will accomplish is shown by the following schedule:

Gas at 75c. .....100 per cent
Distillate oil at 7c..... 77 per cent
Coal at $15 per ton.... 53 per cent

Figures never lie, and the moral of this little tract is:

BURN GAS FOR THE SAKE OF ECONOMY

When all is said, however, the housewife who has to use the stove is the real member of the family to whom to appeal, and accordingly, several days prior to the Gas Week Demonstration, they sent out a little circular to the housewives of Los Angeles:

GAS RANGE WEEK, MAY 5-10

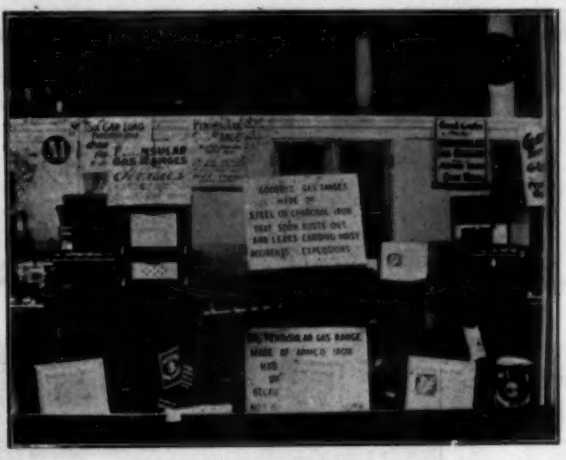
Thousands of housewives will want to witness the battle of the gas range with the kitchen gas plates, coal stoves and oil stoves this week.

Never in the city's history has the public viewpoint been so sharply focused on the two big subjects of "gas" and "gas ranges," and so strong an issue created between the gas range and the older stoves which burn oil or coal while mercilessly "cooking the cook."

Vantage points from which to witness the decisive battle may be found at the following-named well recognized gas range dealers:

(Here followed a complete list of merchants taking part in the gas range demonstration week, to the number of a score.)

Each dealer has arranged a different setting for his favorite gas range. The housewife, who naturally will visit all the places mentioned, in order to obtain the widest possible education, may become a



real gas range encyclopedia before the week is ended. No salesman, hereafter, with an inferior article and a superior vocabulary will be able to convince her that the worst is "just as good" as the best.

Make the rounds, and hear what every gas range dealer has to say concerning his pet. An unusual "demonstration" will be given, which will be educative, at least, beside being entertaining, and in many cases "filling" as well.

It is safe to say, that having had the subject of the coming gas demonstration week drummed into her head so effectively for several weeks, almost every woman—and many cases accompanied by her John—took occasion to investigate the merits of the different ranges. She could scarcely fail to learn something of value, no matter what part of the business section she traversed, as every hardware, house furnishing and gas dealing merchant had an exhibition of gas ranges.

Perhaps the most comprehensive display was that of Overells, who devoted an entire series of windows to featuring the ranges. The corner window was fitted up as a model kitchen, with kitchen cabinet and Peninsular gas range. Here every day from 11.00 a. m. to 4.00 p. m. a demonstrator baked bread, rolls, pies and cake, and furnished samples to an enthusiastic crowd of visitors. Another window compared the old style with the modern gas range.

In the background were shown the new style gas ranges, and on the wall hung several catchy cards:

If father cooked the Sunday dinner
He would say: Buy a Peninsular Gas Range. You bet!

Food cooked on a Peninsular Range
Makes home a joy; home-life worth living; and your wife the best cook on earth.

They also made an especial appeal to June brides in another window. Here was a white enamel gas range, with nickel trimmings, to the handle of the oven being tied a big bow and long streamers of broad white ribbon. Beside it was a large card showing the cut of a wedding party at the altar, and below, in letters of green and gold:

BUY A GAS RANGE FOR A WEDDING PRESENT

Nothing could make a more appropriate gift to a young married couple than a superb gas range that will last a lifetime, and cause no heartaches or regrets.

Barker Bros. specialized on the Chambers Fireless Cooking Gas Range. They advertised in the local papers:

THE CHAMBERS FIRELESS SAVES FOOD

Do you know that ordinarily you get only 6 to 7 lbs. out of every 10 lbs. of meat you cook? The fireless cooker gives you 8 to 9½ lbs. And who would deny that fireless-cooked food is better, knowing that by this method the delicious food juices and flavor are retained.

The cheaper and tougher cuts of meat may be roasted to a delightful turn in the oven of the *Chambers Fireless Gas Range.*

See our demonstration of the fireless cooker in our show windows every day during gas demonstration week, from 11.30 a. m. to 4.30 p. m.

In the window was shown a gas range with fireless cooker attachment. By it stood a wax model, placing food in the oven. During the demonstration period this figure was removed, and an alert demonstrator took its place. Much of the selling power of the window was gained through the catchy and practical cards on either side of the stove:

There is absolutely no economy in using an old worn-out gas range no matter how endearing it may be to the family.

New ranges use less gas because they are equipped with adjustable

orifices which may be regulated to the gas you are using, whether it be natural, artificial or a mixture of both.

and

Just as cooking with gas is so vastly superior in every way to the old-fashioned, mussy, inconvenient and troublesome way of cooking over the fierce heat of a coal or wood fire, so the Chambers Fireless Cooking Gas Range is to the ordinary gas range.

This range has a fireless cooker built right into it, which enables it to cook at full speed with the gas turned off.

Your old range accepted as part payment on a new Fireless one.

The Los Angeles Gas Appliance Company had a beautiful display of gas ranges, two in each window, set in the midst of palms and vases of ferns. The catchy card in the foreground, which was artistically printed on a long panel, brought a smile of amusement and then of appreciation to every housewife:

HAVE YOU A JEWEL IN YOUR FAMILY?

Can you imagine anything more pleasing than a happy family at dinner time? Daddy is home from work, and the children, for the moment forgetful of their hunger, romp to the table, tugging at their beloved father. All are seated, and the tidy housewife, beaming with anticipation, brings in the dinner. A sizzling roast, browned to the queen's taste; baked potatoes, popping from their skins; vegetables steaming with appetizing aroma; and muffins just like mother used to make.

Father, scenting the tasty flavors, puts his arm around the thoughtful wife, and says: "Dearie, you are a jewel."

"Yes, daddy," she answers, "but I have a

Clark Jewel

in the kitchen—the one you bought me yesterday. It's a pleasure to get dinner on such a dandy *gas range*."

Inside, each day, they gave a demonstration of the many conveniences and cooking power of these gas ranges.

The Pasadena Hardware Company, featuring the Acorn Automatic Gas Range, told of its merits in the novel advertisement:

THE RANGE THAT ALMOST THINKS

Have you not sometimes dreamed about a stove that would do your cooking for you, while you rested, or played, or shopped, or perhaps motored for miles from home?

Your Dream Stove Is Here

It is a gas range with a spacious automatic retained-heat cooking oven, in which cooking can be done without any attention on your part.

Colyears, featuring the Garland Gas Range, showed one of the stoves in the window, and a big red circle, made of cardboard, extending all around the window. To this were fastened life-size half-length cut-outs of father, mother, son and daughter, while down in front was a card: "The Garland Gives Satisfaction All Around." Beneath the cut-out of each figure, was a gaily lettered card: "Father Smiles at the Size of His Gas Bill," "Mother Likes to Cook on a Stove that Guarantees a Perfect Oven," and "All the Children Grow Fat and Happy 'Cause Everything Tastes So Good."

The Jantzen-Railsback Company, featuring the Reliable Ranges, called attention to the top-burner lighting attachment, obviating the use of a match; Stavnows featured the same range, laying particular stress on its rust-proof interior; while among the other firms exhibiting were the Parmelee-Dohrmann Company; Lyon, McKinney, Smith Company; Los Angeles Furniture Company; Goodan-Jenkins; Cass, Smur, Dameral Company; Colgan-Henderson; Benson Hardware Company; Eastern Outfitting Company; Brents; The Broadway; and Hamburgers.

During the first three days of the week the local papers had a four-page section devoted entirely to gas ranges. All of the above firms advertised the merits of their own particular stove in the columns of this section, while there were a number of columns of reading matter relative to gas as a fuel and the economy of its use.

Cleveland Gives an Unique Exhibit of Gas Machinery

Exhibits during the week of May 20 at the Central Armory at Cleveland, Ohio, shows every piece of machinery and material used in conveying gas from the well in the field to the gas jet and the stove in the household.

W. B. Way, acting secretary of the Association of Natural Gas Supply Men, says the Government must adopt measures for conservation of natural gas to save the supply.

Secretary Lane, Department of the Interior, spoke on possible Government control of gas fields and the conservation of gas.

Features at the exhibit were appliances to cut down gas leakages. Among these is a water heater with safety air burners which will supply 1,000 gallons of hot water at a fuel cost of 25 cents.

Gas Lighting Opportunities Offered by Prohibition

By J. E. BULLARD

The annual sum of money now being spent for alcoholic drinks is $1,724,000,000. It is estimated that this sum will be spent with other storekeepers in addition to what is already being spent with them as soon as the dry laws go into effect. It is estimated also that an additional sum will be spent with these storekeepers. This additional sum will be the money which will be earned and spent by those people who now have to devote all their time to consuming alcoholic drinks and who of course will have leisure to earn more money than they are earning now just as soon as the need for their peculiar abilities is ended by the dry laws.

Where will all of this money be spent? There is enough data already on the subject so that we know where a good part of it will go. In every State that has gone dry, in every town that has gone dry there has been a great increase of the candy and soda water business. Sugar satisfies the same craving as alcohol does. It does it without the ill effects. One can consume vast quantities of sugar and still be able to continue at his occupation. So we find that when towns go dry the business in the candy stores and at the soda fountain of the drug stores immediately picks up.

We can look forward to a large increase of both candy stores and drug stores. These stores will have to be lighted. It is probable that not only will all the stores now being occupied by saloons be occupied by stores but that more stores will be opened in the vicinity of the present saloons. Many of the old-fashioned saloons spoiled the neighborhood for other classes of business. With them closed business in the vicinity of their old locations is bound to increase.

"Candy manufacturers," says the *Retail Public Ledger*, "without ex-

ception are preparing for heavy increase in demand, and are increasing their facilities of production. It is a fact medically established that the human constitution that is accustomed to alcohol and is deprived of it craves sweets. The sugar replaces the alcohol in the system to a large extent. And every habitual drinker who has sworn off for any period will testify to it.

"In terms of retail business this should mean an increase in demand for candy at reasonable price in small amounts. Fifteen cents' worth of chocolate creams will be called upon to take the place of the fifteen-cent drink in many cases.

"The demand for soft drinks also will increase, both as a result of appetite and of social conviviality. Ice cream may also be included here."

What an opportunity this change of things is going to offer the gas man. It is estimated that each family will have $86.20 more a year to spend than it has now. This is going to mean more stores to serve them. It means greater lighting opportunities. The only way that the old saloon location can be made an attractive store location is by lighting it up brilliantly. The only way to be sure of getting this lighting is to get after the owner of these places. Light the corner up brilliantly so that the prospective storekeeper can see for himself what a desirable location it is. The chances are that some of the men who will enter the candy or drug business are now working during the day and look for locations at night. They certainly can find a brilliantly-lighted corner much easier than they can a dark one.

The wise real estate owner or agent instead of closing up the room that has been used as a saloon and turning it into an apartment will remodel the property he owns or has charge of in the immediate vicinity for store sites. Instead of fewer business institutions on account of the removal of the saloon there is pretty sure to be more.

Where there is a saloon to-day we may expect to find a drug store, a candy store or a fruit store in a few months after the saloon is closed. Grocery stores will also be on the increase, and if there is not one now in the vicinity of the saloon there probably will be one soon after the saloon is closed. The money that is now being spent for drink is going to be spent to a very large extent for things to eat, for groceries, for candy, for ice cream and for fruit.

These places can be lighted both inside and out by gas if the gas lighting salesmen are wide enough awake to the opportunities offered them. Now, however, is the time to get ready. Now is the time to interview the owners of the buildings occupied by saloons, now is the time to interview the agents for such buildings. Now is the time to show what real opportunities are being offered to all by the prospects of a bone-dry country.

It will pay to keep a close watch on all the saloon locations. Even before the saloon goes out of business there is likely to be a change in its locality. New stores may be opened. Preparations may be made to develop the locality for other kinds of business before the saloon has gone out of existence. All of these changes, all of these new stores, mean gas lighting opportunities.

The wise gas lighting salesman will follow them up. He will keep in close touch with the men who own or rent such property. He will see that gas piping goes in when the buildings are being remodelled. He will demonstrate good gas lighting to the stores already existing in the neighborhood. Somebody is going to get this lighting business. It is up to the gas man whether he will get it or not.

A CORNER OF THE HOTEL SENECA "ALL-GAS" KITCHEN

Rochester Hotel Proves Efficiency of All-Gas Kitchen

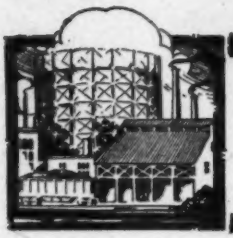
The Hotel Seneca, one of the largest first-class hotels in Rochester, proved to its own satisfaction the economic value of an all-gas kitchen.

Two sections of Garland Hotel Ranges with semi-solid all-hot tops were installed in the latter part of 1917 to test the merits of gas. The gas consumption on these ranges was measured by a separate meter for a period of several months, and the operation of these ranges was so satisfactory that in May, 1918, the management placed an order for four additional sections of ranges and a gas broiler to complete the new installation.

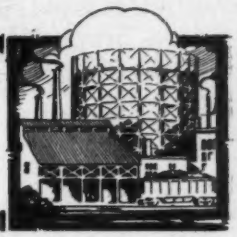
Eight sections of coal ranges were formerly taxed to their capacity to prepare the food, but under the new conditions more work is now being done with less effort on six sections of gas ranges.

Plant Escaped Serious Fire from Spark Igniting Waste

The gas plant of the Oshkosh Gas Light Company was in danger of a serious fire last week, the cause being a spark from the boiler room igniting some waste material outside the building and the flames extended up the side of the structure. The fire department responded and extinguished the flames in a short time, the damage being small.



NEWS OF THE GAS INDUSTRY



New York State Wants Engineer at Salary Not to Exceed $5,000

An examination will be held June 28, 1919, for the position of Gas Engineer with the Public Service Commission, Second District, at a salary not to exceed $5,000. Application forms will not be sent out by mail after June 16, 1919. Applications received at the office of the commission after June 18, 1919, may not be accepted.

The duties are to supervise the testing of gas and gas meters; to handle service complaints and general correspondence; to investigate and report on questions concerning gas manufacture and distribution, including rate and service matters; and to make inventories and appraisals of gas properties. Applicants should have had at least eight years' practical experience in work qualifying them to discharge the duties of the position. Technical education will receive credit as equivalent to practical experience, graduation in chemistry or chemical engineering courses in a school of highest standing being counted as four years' experience. Subjects of examination and relative weights: written examination, 2; experience and personal qualifications, 3. Candidates may also be summoned for an interview with the examiners. Open to non-residents. Men only.

For application form, address
STATE CIVIL SERVICE COMMISSION,
ALBANY, N. Y.

Ohio Cities Gas Company Perfecting European Selling Organization

President Dawes Visiting England, France and Belgium

The Ohio Cities Gas Company is now perfecting an extensive European selling organization, the lack of which has been considered the company's one weak spot. President B. G. Dawes has sailed for Europe and will visit England, France and Belgium for the purpose of expanding the company's export business, now handled through its subsidiary, the Pure Oil Company. The Ohio Cities Gas Company is the third largest independent oil producer in the United States and has a total pipe line mileage of 3,964 miles, of which 1,325 miles are main line and 1,639 gathering lines. There are 31 main line pump stations and 64 gathering line pump stations. The storage capacity in connection with these lines is 2,318,165 barrels. These lines are connected with 8,679 wells with a daily average production of 13,378 barrels. During the year ending Mar. 31, 1919, 6,505,382 barrels of crude and 315,857 barrels of refined oils, a total of 6,829,239 barrels were received. The company controls an acreage of 861,197, of which 71,591 are operated and 789,606 are unoperated. Of the unoperated acreage 51,054 are in Texas and 237,930 in New Mexico. The company has not yet operated any land in either of these States.

Commissioner of Public Works Would Force Peoples Company's Payment of Revenue to City Treasury

An attempt to force the Peoples Gas Light & Coke Company of Chicago to pay part of its revenue into the city treasury, as the telephone and the Commonwealth Edison Company do, is urged by William H. Reid, commissioner of public works in Chicago. Mr. Reid's proposal will be considered by the State Commission on Public Utilities, who are now sitting on gas rates. The attention of John A. Richert, chairman of the city council finance committee, was called to the fact that the Peoples company is not paying over any revenue to the city as the telephone and electric companies do, and it is expected that he will take some action in the matter.

Laclede Company Passes $187,000.00 Regular Quarterly Dividend

First Time in Its Dividend History Since 1898—High Manufacturing Costs and Rate Increase Still Pending Chief Reasons

The directors of the Laclede Gas Light Company have ordered the regular quarterly dividend of 1¾ per cent on its $10,700,000 common stock outstanding, payable June 15, deferred. This is the first time in the company's history that this quarterly dividend has been deferred. The board of directors' announcement states the reason for passing the dividend is because of the present high manufacturing costs and also because the application for permission to increase rates is still pending. The quarterly dividend amounts to $187,000. Laclede Gas Light Company has paid regular quarterly dividends since 1898.

Commercial Attaches of the Netherlands' Legation Extend Their Courtesy to the Gas Industry

A commercial department of the Netherlands' Legation to the United States has recently been established for the express purpose of fostering trade between the United States and Holland. The headquarters are at Washington, D. C., and the department is in a position to give any and all kinds of commercial information about trade between the two countries to American merchants in the gas industry.

MASSACHUSETTS LIGHTING COMPANIES' subsidiaries report aggregate net sales for April of $144,259, as compared with $122,063 for April, 1918, an increase of $22,195. For the ten months ending April 26 the net sales were $1,540,396, as against $1,295,376 last year, an increase of $245,019.

Standard Gas and Electric Company Consolidates with Large Oil Interests

Merger Affects Character of Many Companies

H. M. Byllesby, president of the Standard Gas & Electric Company announces the consolidation of his company with the C. B. Shaffer oil and refining interests. The name of the new company is Shaffer Oil & Refining Company. C. B. Shaffer has been elected president and Mr. Byllesby chairman of the board of directors. Mr. Shaffer's entire staff will remain with the new organization. The Standard Gas & Electric Company, of which Mr. Shaffer has become a director, obtains a majority interest in the new company. The deal completely changes the character not only of the Standard company but of H. M. Byllesby & Company, which has controlled and managed Standard Gas & Electric, Northern States Power Company, Louisville Gas & Electric Company, Western States Gas & Electric Company and many other holding and operating properties.

The Standard Gas & Electric Company will take over all of the engineering and utility managing business of the Byllesby organization, which retains only its bond business. Standard will thus dominate all of the properties heretofore managed by the Byllesby company.

New financing is planned which calls for the sale to the public of $12,000,000 Shaffer Oil & Refining Company (the new oil corporation) convertible ten-year 6s and $11,000,000 7 per cent cumulative preferred. The proceeds will be used to pay for the Shaffer property and to furnish about $4,000,000 working capital. In addition the company will have 500,000 shares of common stock of no par value, of which 200,000 shares will be outstanding and largely held by the Standard company. The Shaffer interests for years operated entirely independently and constituted the one remaining large independent complete oil property that had not heretofore been consolidated with other interests.

THE CITIZENS GAS LIGHT COMPANY of Quincy, Mass., has received an order from the Gas & Electric Light Commission to reduce the price of gas sold by the company from $1.40 per 1,000 cu. ft. to $1.25.

Peoples Gas and Coke Testimony Before Commission

Company's Chief Chemist Testifies Regarding Technical Problems

Plans of the Peoples Gas Light & Coke Company of Chicago to raise its rate so as to receive a return of 8 per cent on a valuation of $97,903,000, were this week made known before the Illinois Public Utilities Commission. The company is conducting its side of the rate controversy before the commission at present, and has turned in a very full set of figures and diagrams in support of its claim. Return by June 1 to the 70-cent pre-war rate was not ordered by the commission in spite of the demands of city attorneys, and the company's attorney, Timothy F. Mullen, announced at the time of that ruling that the company would apply either for a continuance of the present 88-cent rate beyond August 1, or for an increase. The definite aim of the company as outlined in this week's testimony, is to clear 28 cents above the producing and distributing cost of the gas, for each thousand feet, which would permit dividends of 12 per cent a year. The present status of the company was fully brought out in statements presented by Attorney Mullen. For the month of March, the total earnings of the company from all sources, including by-products, was 93 cents on each thousand feet. The total operating cost was a fraction under 77 cents, leaving a profit of nearly 17 cents, or almost 20 per cent. The proposed plan to obtain an 8 per cent return on $97,903,000 in addition to the cost of operating the gas properties, delivering the gas and collecting the bills, amounts to $7,832,000 for the financiers. The company's bond interest, and the annual payments to the Ogden Gas Company and the Indiana Natural Gas Company, which are not considered operating expenses of the company, amount to something less than $3,000,000 a year, leaving $4,800,000 as dividends. The company declared that there was a drop of 8 cents per 1,000 ft. in the operating expenses between last December and March, the last month for which reports were submitted. Even with that drop, the profit ran lower than schedule, as the company should have been getting a return of $1.08 per 1,000 ft. instead of 93 cents.

The estimates of the value of the gas properties by the commission and city experts placed the valuation at between $45,000,000 and $50,000,000, and their highest allowance was a 7 per cent profit, which would give the company less than half the profit it asks. John M. Moorehead, former chief chemist of the company, gave testimony in regard to certain technical problems. In support of the company's claim that it is impractical to meter the output of individual gas machines in order to check on their efficiency, Mr. Moorehead called attention to the fact that the volume of gas increases one per cent with every five degrees increase in temperature, and that therefore the position of meters near the furnace, or in warm weather, directly influenced their register of gas. "The gas at the beginning of a run is cold," Mr. Moorehead said, "and at the end is hot. Unless some means could be devised to correct the meter reading in accordance with the temperature, the volume shown on the meter would be worthless so far as determining the amount of gas produced is concerned. By increasing the temperature 500 degrees you would double the volume of gas."

The influence of the weather on demand was also emphasized by Mr. Moorehead, when he said that the occurrence of a weather change might cause the increase in demand of 5,000,000 feet within an hour. The witness declared that the Peoples Gas Light & Coke Company produced as efficiently as the New York company. In reply to the remark of Donald Richberg, attorney for the city, that the New York company was able to sell gas at 80 cents and pay dividends, Mr. Moorehead declared that the New York company lost money on their gas. The company's difficulties in securing sufficient help were referred to the Soldiers' Employment Bureau by the advice of Attorney General Mills. The pay of $3.50 for an eight-hour day Mr. Mills regarded as holding attraction for returned soldiers.

THE CENTRAL STATES GAS COMPANY has petitioned the Indiana Public Service Commission for permission to issue two-year notes to the amount of $200,000 to cover the cost of recent improvements made on its local plant.

Greater Gas Production Discovered in Louisiana

Southwestern Gas & Electric Company Denied Rate Increase

A giant gasser, with an estimated daily capacity of 50,000,000 cu. ft. daily has just been brought in in the Pine Island district of the Caddo field, near Belcher, La. The well was brought in by the Hudson Oil Company at a depth of 2,248 ft., and is reported to be one of the largest gas wells in the mineral history of the State. The Southwestern Gas & Electric Company had filed a petition in the United States District Court at Shreveport, La., for an increase in rates in which it offered evidence that the original Caddo field supply had been reduced so that it was impossible to furnish the local needs from that source. The company is operating under two franchises; one which provides for an increase in rate if gas has to be pumped to supply Shreveport; the other providing that the original rates remain in effect so long as the gas could be delivered on its own pressure. The city requested the Federal Government for a geological survey of the field and the report of United States Geologist Eugene Wesley Shaw was obtained saying that there are 900,000,000,000 cu. ft. of gas in the North Louisiana field. This report established a pivotal point in the city's evidence. The city looks upon the legal victory as giving a judicial confirmation of the report of Mr. Shaw that this city's great natural resources have not been impaired. Mr. Shaw found that the gas supply would last for years and that it would not run out until after business men had reaped the full return on any investment they might make in plant and machinery.

A Lightship Bell Operated by Gas

A new lightship also has a bell, which is made to ring automatically by means of a highly ingenious device which utilizes the gas as it passes from the tanks to the lantern, to actuate the bell clapper. The light is not interfered with in the slightest degree by the operation of the bell-striking device. It is only set in motion, however, in very foggy weather, when the light cannot be distinguished at any great distance.

Manager Sees Prospect of Great Fuel Shortage Next Winter

The general manager of the Milwaukee Gas Company, R. B. Brown, spoke before the Milwaukee, Wis., common council legislative committee and opposed the city's plan of assessing the company's property as real estate and personal property instead of as personal property, which would prevent the company offsetting its income tax. Mr. Brown declared that the greatest shortage in fuel during the war is in prospect for next winter. He further stated that profits of the company during 1917 and 1918 had been due to advantageous contracts which had now expired, and insisted that the average profits of the company should be considered instead of one or two exceptional years, saying: "Our profits are now decreasing thousands of dollars every month and we do not know when they will stop. Coal is costing us more than we have been paying and I look for higher prices. There is a shortage now of many millions of tons. Men are leaving the mines and I look for worse conditions next winter than they have yet existed."

Employees' Association of Milwaukee Utilities Fights Municipal Control

The Employees' Benefit Association of Milwaukee, representing 5,000 workers engaged in the operation of public utilities, which includes among its members practically all of the employees of the Wisconsin Gas & Electric Company, makes the following indictment in a petition to the legislature:

Wisconsin cities owning and operating public utilities "have usually and notoriously maintained conditions of employment for workers by them unfavorable and unjust to workers, including the low wages, long hours and unfavorable working conditions and there is reason to believe that the policies which cities have heretofore maintained towards workers will be continued in public utility service if the operation of public utilities should be taken over by cities."

The association is lending its efforts to have a law enacted to limit the operations of cities in the handling of public utilities. If legislation is enacted for municipal control, the petition of the employees' association asks that amendments be added to provide that any municipality acquiring and operating any railway or public utility adopt and maintain with respect to employees engaged therein, "a modern, progressive labor policy, including a scale of wages commensurate with proper living at present cost, the eight hour day, suitable working conditions and adequate consideration for workers in all respects."

Commission Approves Rate Increases of Boston Companies

The gas and electric light commission issued orders providing increases in the price of gas as follows:

Newton & Watertown Gas Light Company, on and after May 1, 1919, to not exceeding $1 net 1,000 cu. ft., in place of 95 cents per 1,000, established a year ago for the duration of the war.

East Boston Gas Company, on and after May 1, 1919, to $1 per 1,000 cu. ft., in place of 95 cents, established April. 1, 1918, for the duration of the war.

The price at which Boston Consolidated Gas Company supplies gas to the Newton & Watertown Gas Light Company is increased from 55 to 60 cents per 1,000 cu. ft.; that at which Boston Consolidated Gas Company supplies gas to the Dedham & Hyde Park Gas & Electric Company, from 58½ to 62½ cents per 1,000 cu. ft.; that at which the Boston Consolidated Gas Company supplies gas to the Citizens' Gas Light Company of Quincy, from 57½ to 62½ cents per 1,000 cu. ft.

Extensions Held Up on Account of Pipe Foundries

The Des Moines (Iowa) Gas Company is experiencing difficulty in making extensions to residents of the city who live out of the "gas zone," and E. H. Martin, an official of the company, has made a statement that relief will not be granted for fully eight months. Mr. Martin says he has received notice from the pipe concerns that they are just turning their foundries back into pipe manufacture from shell making, and that it will be June before they can start production, after which time his company will have to wait its turn on the list.

The Entertainment Program a Feature of the Southern Convention

One of the most enjoyable features provided by the entertainment committee of the Southern Gas Convention at Asheville, N. C., was the old-fashioned games played by the gas men and their guests on the top of Sunset Mountain. J. D. Taylor was in charge, and W. S. Guitteau, of the Stacey Mfg. Company, Cincinnati, was the official announcer.

The first event was a 100-yard dash, for men, and was won by Alex. Wolf of Baltimore, Md. The prize was donated by the Detroit Stove Works.

The second event was a peanut race, for ladies; the first prize was won by Miss Fanny Hendrix, of Greensboro, N. C., and was donated by the Ruud Mfg. Company.

The third event was a potato race for men only; won by Sam Brown, of Newbern, N. C.; the prize was donated by the Michigan Stove Works.

The fourth event was a unique horse race—the men driving the women. It was won by Miss Catherine Sherwood, of Raleigh, N. C., Alex. Wolf driving. The prize was donated by the Estate Stove Company.

The fifth event was a three-legged race, won by Noble Clay, of Durham, N. C., and George Smith, of Norfolk, Va. The prizes were donated by William M. Crane & Company.

The sixth event was a sack race. Won by Noble Clay, of Durham, N. C. The prize was donated by the Reliable Stove Company.

The seventh and last event was a tug-of-war—five men on a side—the gas men against the peddlers. The event was won by the gas men. The prizes were donated by the Baltimore Gas Appliance Company.

A very handsome "Irish" parasol was presented to Mrs. J. D. Taylor, chairman of the Ladies Committee, as a token of appreciation of the gas men for her very excellent work. Considerable commendation was expressed in regard to the work of J. D. Taylor, chairman of the Entertainment Committee, who was ably assisted by R. S. Marques and J. D. Caldwell.

There were sixteen entries for the annual golf tournament of the Southern Gas Association, which was started under the most auspicious circumstances.

From the viewpoint of the chairman of the tournament it looked as though the entrants thought they were in the tournament to demonstrate their ability to plow up the course. The rough had no terrors for some of the novices as they soon got used to it. In fact, many of them did not show true form until the 19th hole was reached.

The winners were: Allen M. Kohn, 1st, 93; E. S. Dickey, L. B. Young, tied for 2d, 95; 18 holes.

The prizes for the golf tournament were donated by the Eclipse Stove Company. The prizes for the ladies' card party were presented by other manufacturers of ranges and appliances.

Officers and New Members of the Southern Gas Association

The 1920 convention of the Southern Gas Association will be held at Norfolk, Va. At the 1919 convention held at Asheville, N. C., which closed last week, the following officers were elected:

Noble L. Clay, manager and superintendent of the Carolina Power & Light Company, Durham, N. C., president; Edmund S. Dickey, secretary and treasurer of Chas. H. Dickey & Company, Baltimore, Md., first vice-president; J. H. Hagerty, general manager of Valdosta Gas Company, Valdosta, Ga., second vice-president; M. A. Bowlin, sales manager of the Macon Gas Company, Macon, Ga., secretary and treasurer.

The new members elected to the association were E. R. Horton, Jr., manager Anderson Gas & Utility Company, Anderson, S. C.; B. D. Harriman, manager Goldsboro Gas & Fuel Company, Goldsboro, N. C.; Jas. A. Forney, superintendent gas department Charlotte, N. C. Gas & Public Utilities Co.; S. S. De Vett, General Gas Light Company, New York City; F. J. Cahill, manager Rome Gas Company, Rome, Ga.; J. H. Burnley, district foreman, Henrico County Gas Company, Richmond, Va.; J. M. Barry, local manager Alabama Power Company, Anniston, Ala.; J. T. Bland, superintendent Washington Gas Company, Washington, D. C.; T. J. Potter, W. M. Crane Company, New York City; J. L. Gates, commercial manager C. P. & L. Company, Durham, N. C.; Thos. C. Ratcliff, assistant manager Baltimore Gas Appliance Company, Baltimore, Md.; E. H. Parrish, J. B. Dow & Sons, Atlanta, Ga.; B. T. Ehrnman, Russell Engineering Company, St. Louis, Mo.; Roy B. Verdery, research department, National Tube Company, Atlanta, Ga.; D. B. Sutherland, assistant engineer, Parker-Russell Company, St. Louis, Mo.; Alex. M. C. W. Wolfe, representative In-

diana Meter Works, Baltimore, Md.; F. A. Lemke, manager Humphrey Company Div., Kalamazoo, Mich.; P. K. Hampton, superintendent Southern Public Utilities Company, Charlotte, N. C.; W. H. Price, chief engineer gas department Havana Elec. R. L. & P. Company, Havana, Cuba; W. J. Josende, Havana, Cuba; L. J. Houston, Jr., city manager, Fredericksburg, Va.; Harry Dobrin, industrial engineer, Chattanooga Gas Company, Chattanooga, Tenn.; Bert H. Jardine, manager new business, Knoxville Gas Company, Knoxville, Tenn.; R. A. Lovett, Humphrey Company, Kalamazoo, Mich.; H. D. Mitchell, general manager, Rock Hill Gas Company, Rock Hill, S. C.; Carey A. Moore, Southern sales manager, National Stove Company, Lorain, Ohio; P. J. Naschold, sales manager, Nashville Gas & Heating Company, Nashville, Tenn.; T. U. Sanderson, superintendent gas department South Carolina Light, Power & Railway Company, Spartenburg, S. C.; Tom M. Starnes, manager Southern sales department Am. C. I. P. Company, Birmingham, Ala.; Jack M. Steele, superintendent gas department, Columbia Railway, Gas & Electric Company, Columbia, S. C.; J. S. M. Wharton, secretary-treasurer and manager Helena Gas & Electric Company, Helena, Ark.; J. M. Wilson, chief clerk, Roanoke Gas Light Company, Roanoke, Va.; V. S. Wright, general manager, Columbia Railway, Gas & Electric Company, Columbia, S. C.; A. T. Bagett, clerk, Suffolk Gas & Electric Company, Suffolk, Va.; A. M. Kahn, sales manager gas and electric department, New Estate Stove Company, Hamilton, Ohio; T. V. Sanderson, superintendent gas department, South Carolina Light, Power & Railway Company, Spartenburg, S. C.; A. D. Lohock, C. C. Railway & Light Company, Charleston, S. C.; H. C. Donahue, O. S. record clerk, C. C. Railway & Light Company, Charleston, S. C.; J. P. Conneely, foreman gas district, Charleston City & Light Company, Charleston, S. C.; J. T. Stalling, manager, Elizabeth City, N. C.; M. O. Lane, superintendent Florence Gas Company, Florence, S. C.

Bill to Amend Public Utilities' Law Before Illinois Senate

Officals and Citizens of 200 Cities and Towns Back Measure to Take Authority from State Commission

The bill to amend the public utilities law of Illinois, and give to the cities and villages of the State the power to direct their own public service, is now before the senate committee on public utilities. It is expected that the committee will make its recommendation for the adoption of the bill soon, or else return it with the opposite suggestion.

Supporters of the measure are appearing in great strength, and there seems no possibility that the bill will lapse. At a committee meeting held recently, the consensus of opinion was in the direction of getting the bill out of committee within a week, although some members, notably Senator Richard J. Barr, desired a longer period for study. The replies of the State public utilities commission to the charges which came out against it in the committee's hearings on the bill merited special attention, Senator Barr declared.

Senator Dailey, chairman of the committee, made the claim that the bill "has fatal legal defects, and is of doubtful constitutionality," and this opinion was strongly enough reflected by other members of the committee so that the bill was referred to a subcommittee for better study. The subcommittee consists of Chairman Dailey and Senators Roos, Duvall, Cliffe and Gorman, all lawyers. They will digest the bill and prepare a careful report on it for a future meeting of the committee.

Interest in the bill was keen enough to call out every member of the committee. The mayors and other officials of more than 200 Illinois towns and cities, including Chicago, are backing the measure. Corporation Counsel Ettelson, of Chicago, is anxious to avoid delay in the passage of the bill.

The discussion on the matter brought out the point that there is considerable sentiment in the committee toward the commission plan, or for increasing of the present commission, which, Senator Roos said, has too much work to do.

Senator Duvall, recent mayor of Belleville, declared that if the measure were referred to his people they would unanimously back the repeal of the public utilities law. Taking exception to the opinion of Senator Roos that the bill would make a joke of the public utilities commission, Senator Duvall declared:

"The joke is on the mayors and public officials of our cities who have nothing to say about their own public service affairs. They are elected by the people, while this commission is appointed by the governor, but they are powerless, while the commission has everything to say."

THE CONSOLIDATED GAS COMPANY'S hearing on the constitutionality of the 80-cent rate has been set for July 15.

Personal Notes

Walter M. Russell Leaves Gas Company

Walter M. Russell, one of the best known of the technical men in the gas industry has joined the Steere Engineering Company's organization as Eastern representative, with offices at 308 Grosvenor Building, Providence, R. I.

Mr. Russell brings to this position an unusually complete and varied experience in the operation, construction and management of gas utilities and has acquired a reputation as a good organizer, operator and progressive engineer. His first connection with the gas business was with the Dallas Gas Company, in 1908, as chemist and assistant superintendent. He also served for two years as public service engineer for the City of Dallas in charge of all public utility matters, including electric, gas and street railway.

For several years following he was with Hodenpyl Hardy & Company, first at their Peoria property and later superintendent at Springfield, Ill.

From 1913 to 1917 Mr. Russell was general manager of the Emporia Gas Company. While in Emporia he was prominent in city and county civic affairs, being a director in the local merchants' associations and actively identified with State good roads campaigns and other community affairs, at the same time greatly strengthening the position of the gas company with the business interests and authorities of Emporia. During his stay in Kansas, Mr. Russell also carried on a considerable amount of consulting work for gas and electric properties in Nebraska, Iowa and Kansas.

When John R. Freeman, then president and engineer of the Providence Gas Company, in the fall of 1917 began to develop the plans which led to the construction of the new Koppers gas and coke oven plant, he selected Mr. Russell as his first assistant, having in mind at that time particularly the development of by-products as being essential to the success of the undertaking. Later Mr. Russell became superintendent of manufacturing for the gas company, holding this position until his resignation June 1.

In addition to his experience with gas companies, Mr. Russell was for three years with A. D. Little, Inc., chemical engineers of Boston, and was also engaged in construction work for a year in Oklahoma.

Mr. Russell is known to a large number of gas men through his published writings, being co-author of "Chemical Control of Gas Manufacture," and author of "Operation of Gas Works," which has been so well received by the fraternity as to be now in its second printing.

Mr. Russell has also been a frequent contributor to the gas journals and associations, of which special mention may be made of a paper on "Possibilities of Expansion in By-product Recovery in Gas Works," delivered before the American Institute of Chemical Engineers in June, 1918, and a "Description of New Water Gas Plant of Providence Gas Company," for the last meeting of the New England Association of Gas Engineers.

JAMES R. CRAVATH, a consulting electrical and illuminating engineer of Chicago, and Frank F. Fowle, until recently one of the receivers of the Central Union Telephone Company, and formerly a consulting engineer, have formed an engineering partnership. The name of the firm will be Fowle & Cravath, and offices have been established in the Monadnock Block, Chicago, Ill.

EVERETT T. REED, for many years employed by the Blackstone Valley Gas & Electric Company at Woonsocket, R. I., as chief engineer, has accepted a similar position with the Lowell Electric Lighting Company as chief engineer. Both concerns are controlled by the Stone & Webster corporation. J. M. Harley, formerly employed as assistant engineer of the Lowell plant, has accepted the position at the Woonsocket plant as chief engineer.

JOHN J. BARADA, formerly branch manager for the Laclede Gas Light Company of St. Louis, last week returned from France where he saw twenty-one months of active service with the Twelfth Engineers. He has resumed his connection with the gas company in the office of C. H. Stewart, assistant secretary and in charge of claims.

Construction Notes

Gas Machinery Company Installs New Apparatus in Railway Works

The Gas Machinery Company of Cleveland, Ohio, have been awarded the contract for a new 11 ft. water gas apparatus, condenser and P. & A. tar extractor to be erected at the works of the Birmingham Railway, Light & Power Company, Birmingham, Ala. The Birmingham Railway, Light & Power Company are installing a new building for this set and are also putting in two large motor-blower units as well as other auxiliary machinery in connection with this water gas plant.

Des Moines Gas Company Will Install Main Connections to Vacant Lots

The Des Moines (Iowa) Gas Company has been ordered to make house connections from their mains to the curb line for all vacant lots and improved property not served now in all streets ordered paved by the council.

Heretofore water and sewer connections have been put in ahead of paving, but the gas company had not been compelled to put in their connections.

The result has been that pavement has been torn up before it has had a chance to harden in some instances. The resolution, unanimously adopted by the city council, will mean an expenditure on the part of the gas company of a large sum.

Lynn Gas Erecting New Radio Brick Chimney

A permit has been issued to the Lynn Gas & Electric Company, of Lynn, Mass., for the construction of a boiler chimney at the company's works at the foot of Shepard Street, costing $9,600. The chimney will be built of radio brick with a concrete base seven feet in thickness. It will be 150 feet high and six feet in diameter at the base, tapering to a 30-inch opening at the top. The chimney will be one of the tallest in the city.

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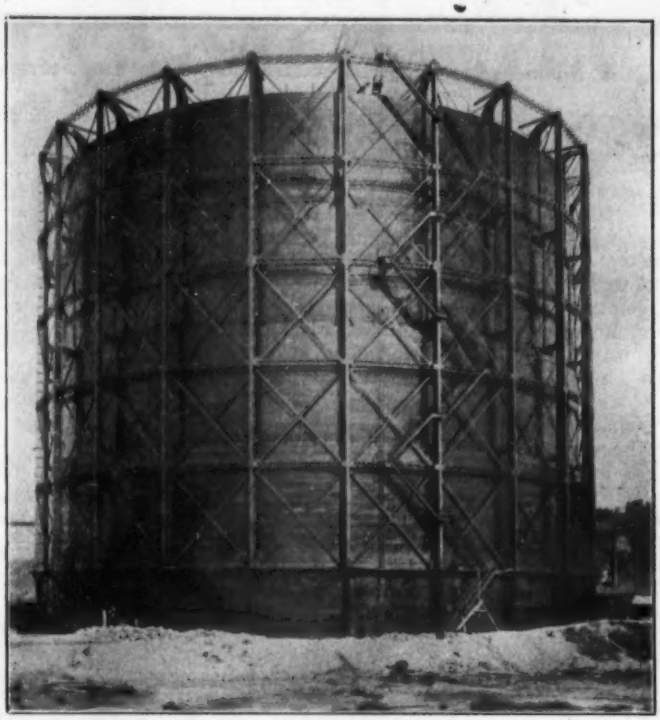

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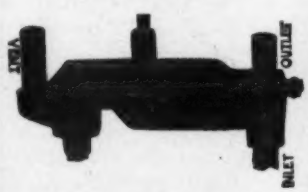

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A New Automatic CO_2 Recorder

The instrument shown herewith is in reality an automatic recording Orsat. A solution of caustic is used for a reagent, and the motive power is obtained from a constant flow of water and the periodic operation of an automatic syphon, the amount of water required per day being approximately two barrels. There are three moving parts—the clock movement for rotating the chart, the penactuating float, and the dotting mechanism. Frequency of analyses is governed by the operating period of an automatic syphon, which is regulated by a valve in the water-inlet pipe. The instrument functions satisfactorily for any number of analyses up to thirty an hour.

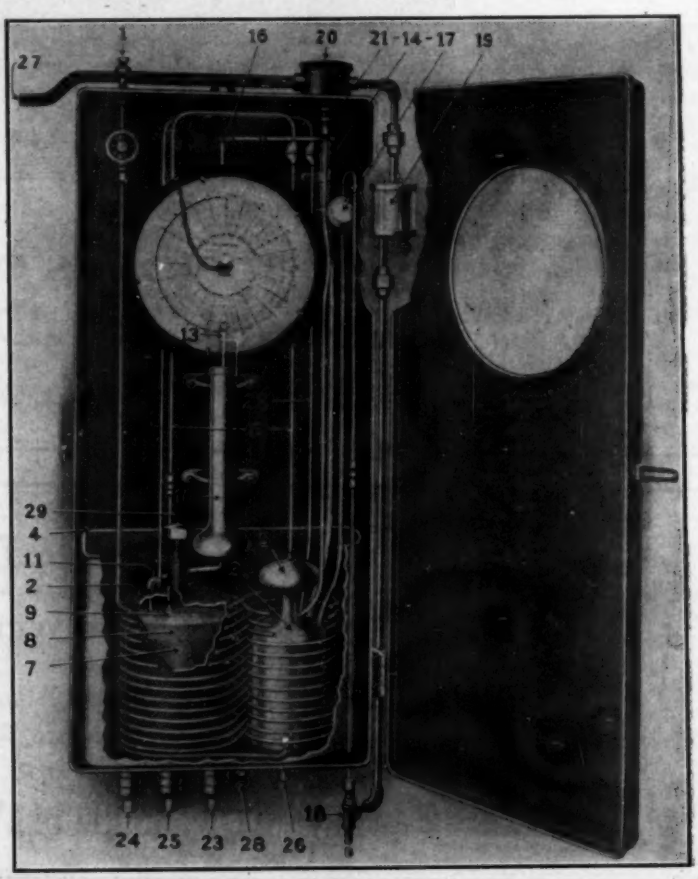
The caustic solution can be renewed without difficulty. The only part of the instrument which has to be removed is the filling cap. The old solution can be completely removed from the absorption vessel by opening a valve at the bottom of the instrument. To obtain the right amount of pen-travel it is necessary that the caustic solution and oil be at exact levels in the absorption vessel; and to make the filling as simple, accurate and as nearly fool-proof as possible, the overflow method is used. All moving parts, stuffing boxes and sights have been eliminated from the absorption vessel, insuring a tight gas chamber.

Lag in the instrument is negligible, the only appreciable amount being that induced by the gas-sampling pipe to the furnace. As the residue and unused gases are removed and the pressure in the instrument is balanced immediately after each analysis, there is nothing left to cause a lag, and any change in draft does not affect its accuracy.

The instrument has improved features, such as automatic self-centering chart holder, interchangeable clock movement with three-point support, improved fountain pen, etc. It is designed for boiler-room installation, and if the full value of the instrument is to be realized, it should be placed where the firemen may see the records they are producing.

The water flows through the coils into measuring vessel 3 and traps a definite volume of gas in bulb 5, forcing it over through tube 6 to absorption vessel 2, where it bubbles up through caustic solution 7, which almost instantly absorbs the CO_2 gas present. Above the caustic solution is a layer of oil 8, and above that is gas chamber 9. A float tube 10 terminates in tube 11, which extends through the oil almost to the level of the caustic solution. Pressure in chamber 9 causes oil to flow through tube 11 into float tube 10 which incloses a float, to the upper end of which is fastened pen 13. The distance the pen will rise depends upon the quantity of gas forced into the gas chamber by the rising water—the gas reaching the gas chamber being the residue of the original sample after CO_2 is removed. The water rising in water-float tube 14 raises a float which operates dotting mechanism 16, causing the pen to press against the chart.

This recorder is manufactured by the Foxboro Company, Inc., Foxboro, Mass.



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